

# American Artisan

Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 96, No. 7

CHICAGO AUGUST 18, 1928

\$2.00 Per Year

NEW and BETTER---"Built to Last"

Made of TONCAN-COPPER-MO-LYB-DEN-UM-IRON

## ROBINSON FURNACES

NO OTHER metal is so well suited for furnace construction as Toncan-Copper-Mo-Lyb-Den-Um-Iron. It is strictly high grade. It resists rust and corrosion.

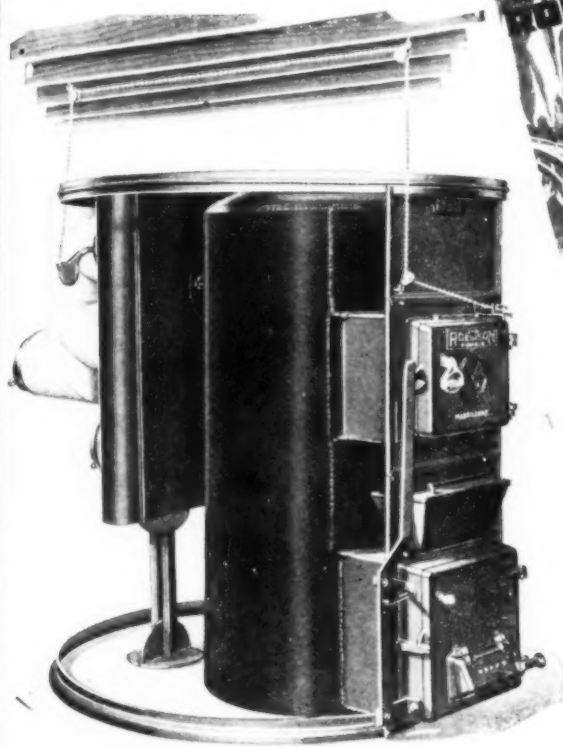
The bodies and radiators of all our furnaces are built of this metal electrically welded gas and smoke-tight.

Some other features are: Automatic Draft Damper Control, New Crescent Radiator, Wide Range of Sizes and Three Types of Radiators. Notice the Radiator is supported by an improved adjustable steel support which does not come in contact with the furnace body.

The New Bee-T-yoU Furnace is for competitive work it delivers more B. T. U.'s than any other furnace at its price.

Find out more about the Robinson line NOW

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NEW ROBINSON



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Catalog today

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A. H. ROBINSON  
COMPANY

MASSILLON,  
OHIO

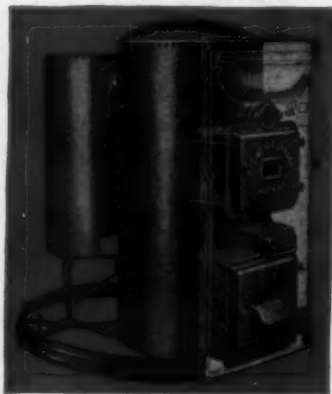
The NEW BEE-T-YO U  
FURNACE



# WHO makes it— makes a difference

TO be good is not sufficient,  
for even a good product will  
sooner or later be "orphaned"  
unless backed by a reliable manu-  
facturer and, most important of  
all, a policy that will stand the  
test of time.

The names "Meyer" and "WEIR" are synonymous and have  
stood for Service in its truest sense for nearly a half century.



*The* MEYER FURNACE CO.  
Peoria, Illinois

Manufacturers of Weir, the original  
and father of all steel furnaces ~

# Heating Merchants Who are Genuinely Interested in Increasing Profits . . . . Will find the Opportunity in the Sunbeam 4 Point Selling Plan



## SUNBEAM SUPERIORITIES

1. Massive Radiator, Cleanout and Smoke Collar cast in one piece.
2. Feed Section extends outside of front of furnace.
3. Ash Pit extends outside of front of furnace.
4. More than 20 feet of joint within warm air chamber eliminated.
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7. All joints are deep, clean-cut cup joints.
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9. Heating unit is centered.
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11. All castings machine-molded. Are uniform in thickness and strength.

*The new*  
**SUNBEAM**  
WARM-AIR FURNACES  
*1000 Series*

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Please send us complete information about the new Sunbeam 4 Point Selling Plan. Also send a copy of the 40-page Catalog and Heating Manual.	
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CITY AND STATE .....	



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**FOR SCHOOLS,  
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JUST THE THING FOR  
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A heavy, durable and powerful heater of exceptional merit that will be sold only through the trade.

One of the very few horizontal furnaces adapted for either brick set or sheet casings. The only one for wide general use in ordinary basements because of its low construction.

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1654 Monadnock Building

MONROE, MICHIGAN

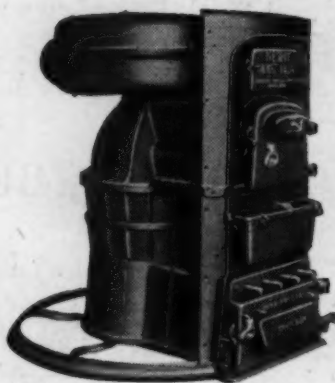
Detroit Office  
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*Announcing—*

## A New and Better furnace

In the NEW  
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"Moist Heat"  
(Registered)  
Furnace

You will find many outstanding selling points, not to be found on any others, and in addition all of the modern features of construction so necessary to the up-building of a successful and lasting heating business.



*Write for Catalogue  
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*Complete Furnace Service At Your Command*

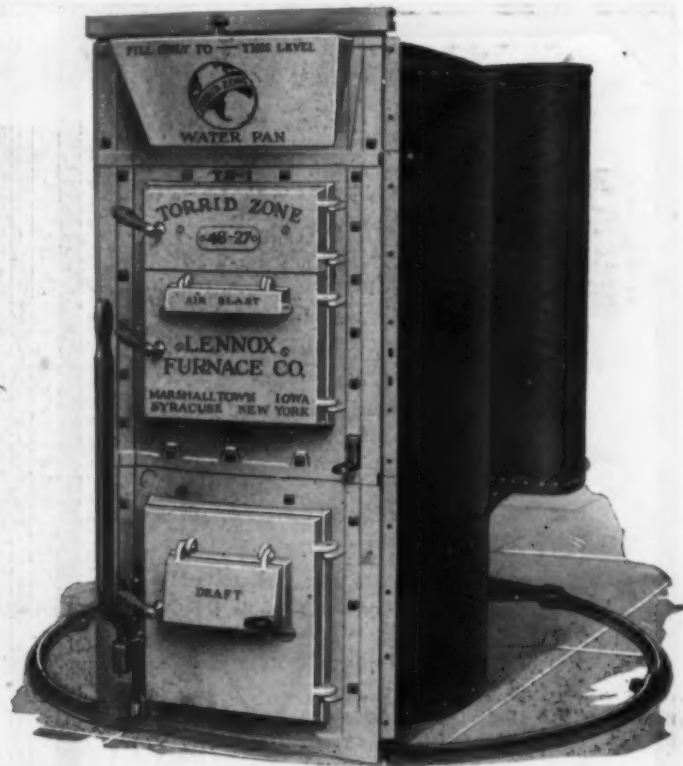
OMAHA, NEBRASKA



You can sell more  
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because there is less  
sales resistance—



**STEEL FURNACE**



**T**HE fact that the Torrid Zone steel furnace leads in sales volume proves that Torrid Zone dealers find less sales resistance than their competitors.

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Manufacturers  
of  
Steel Furnaces**

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## Who Said the Furnace Business Was Crowded?

**E**VERY business is crowded with men selling ordinary things in an ordinary way.

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has again proved  
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### A Better Fire Pot



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**The Wise Furnace Company**  
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## \$\$\$ In Profits Instead of cents

**T**HAT'S the difference between most furnace dealers and "AFCO" dealers who sell "AFCO" Boiler Plate Furnaces.

No Jeweler expects to make as large a profit on a cheap imitation as he does on the real thing—the same thing applies to furnaces.

Folks don't think and talk so much about price when you sell them on the efficient—healthful "AFCO" heating system—the best on earth.

Sell quality heat and "AFCO" furnaces if you want to increase your sales and profits. Ask for the complete "AFCO" story with the coupon—there is no obligation.

**American Furnace Co.**

**St. Louis, Mo.**



American Furnace Co.  
St. Louis, Mo.

Please send, without obligation, full details of the "AFBO" Dealer Plan.

Name .....

Address .....

All  
Standard  
Finishes



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**Y**OU'LL want these better registers in order to secure a better profit.

Your customers will want them because they meet the demand for attractiveness and practical service

**100 PER CENT FREE AIR CAPACITY  
FOR SIZE PIPE INTENDED**

Supplied in all standard finishes of course—write for our catalog which gives full details.

The highest grade economically priced register.

*Your Jobber Can Supply You*

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## The AUERISTOCRAT

of all registers, combining air capacity, decorative and concealing features.

Designed to conform with the Standard Code so they fit all standard boxes.

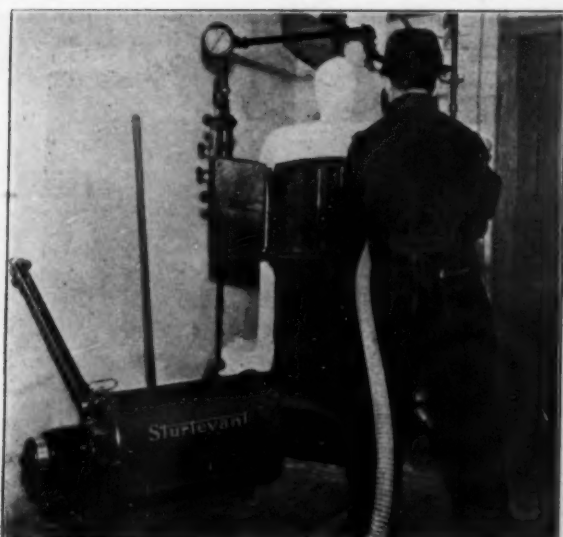
Auer Patented mechanical features make it perfect in operation,—quick and easy to install.

*Auer's Save Hours and Dollars*

**The AUER REGISTER CO.**

Cleveland, Ohio





Photograph courtesy of Doe & Little  
Coal Company, Providence, R. I.

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**M**AKE more money cleaning heating plants this quick way. You can boost your profits with very little effort—in fact you can earn \$25.00 or more a day.

Now is the time to go after cleaning business—while fires are out. The Sturtevant Furnace and Boiler Cleaner—the lightest, quickest and most thorough vacuum cleaner on the market—cleans all kinds of heating plants without scattering dust and dirt all over the cellar and through the house.

Nearly every house owner in your locality will be glad to have their heaters cleaned this quick dustless way. Add a Sturtevant to your cleaning equipment and offer your customers and prospects this vacuum cleaning service.

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Don't overlook this opportunity to increase your profits. Send in the coupon NOW for further information.

**Sturtevant**  
REG. U. S. PAT. OFF.

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B. F. Sturtevant Company,  
Hyde Park, Boston, Mass.

Without obligation to me, send along further information and price on the Sturtevant Portable Furnace Cleaner.

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Address .....

City ..... State.....

A.A.-54

1801

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SOMETHING BETTER  
AND ENTIRELY DIFFERENT

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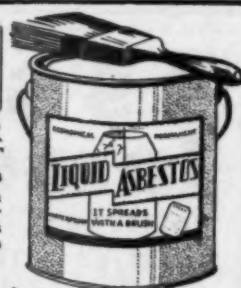
IT'S FIRE AND WATERPROOF  
Makes all pipes and fittings 100% seamless.

A tailor made suit for every heating plant.  
IT SPREADS WITH A BRUSH.

LIVE WIRE FURNACE DEALERS AND PLUMBERS ARE  
INCREASING THEIR SALES.

Ask your supply jobber or write for dealers proposition today.

B. & F. MANUFACTURING CO., 422 Court Avenue  
Des Moines, Iowa

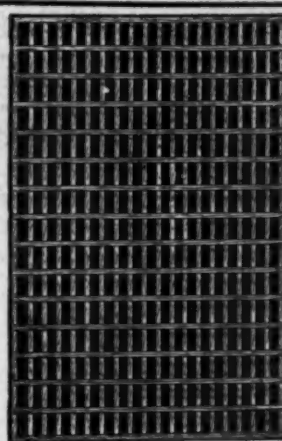


## AMERICAN WOOD REGISTERS

are  
thoroughly inspected and before leaving the factory must come up to the

AMERICAN STANDARD,  
which assures you the highest quality.

THE AMERICAN WOOD  
REGISTER CO.  
PLYMOUTH, IND.



## "GEM"

Adjustable

### RADIATOR SHIELDS

Point out to your trade that one of the best cough- and -cold preventives is the "Gem" Adjustable Radiator Shield equipped with the "Gem" Water Pan Humidifier.

Indoor air should be kept moist as well as warm in winter. 10 popular sizes, retail at \$4 to \$8.



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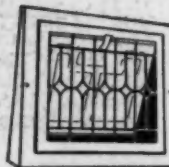


## INDEPENDENT

### Registers

UNUSUALLY attractive designs. Larger open area than usual. Handsomely finished in a variety of colors.

INDEPENDENT  
REGISTER & MFG. CO.  
3741 E. 93rd Street  
Cleveland - Ohio



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Mention AMERICAN ARTISAN in your reply—Thank you!



*This modern home is equipped with T&B Super-Regs throughout in connection with a No. 35 Western Furnace and No. 800 Miller Fan. Heating System was designed and installed by WESTERN FOUNDRY & FURNACE CO., Tacoma, Wash. The house is the residence of W. J. Goldie, Richmond Beach, Wash.*

## In the Homes they are Building today---

Wise furnace men and up-to-the-minute builders know what is best for *them*. Registers, like anything else, that fall short of present-day demands are out of the question. They prefer T&B Super-Regs, with color-harmonizing finishes and every mechanical improvement of the times. For T&B Registers are *modern* registers!

This line is best for the furnace man because the registers insure user satis-

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Get in on the new ideas which Super-Regs hold out for your benefit. There is a T&B dealer or branch office near you—there is one at every principal shipping point in America.

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Makers of Registers and Grilles for 82 years

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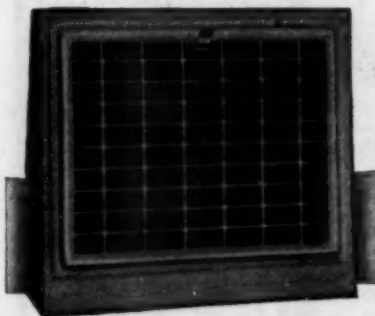
Chicago

Kansas City

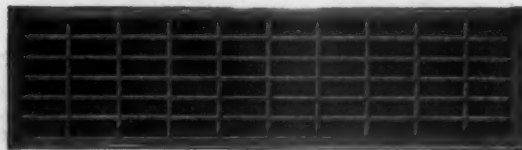
New York City  
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TUTTLE & BAILEY  
**SUPER-REGS**

Trade-mark registered



Style 902 Baseboard Register, EXCESS air capacity—beautiful oblong design. Two-piece with absolutely non-streak, snug fitting flange. Style 402 is same register of one-piece construction.



Style C, Cobble Cold Air Face. CAST construction—Free air circulation. Eliminates need of opening in exact size.



Style 80, Cobble Floor Register—companion piece of Style C Cold Air Face. Tiny "Cobbles" make foot-slipping out of the question.

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Published to Promote  
Better  
Warm Air Heating  
and  
Sheet Metal Work

# American Artisan

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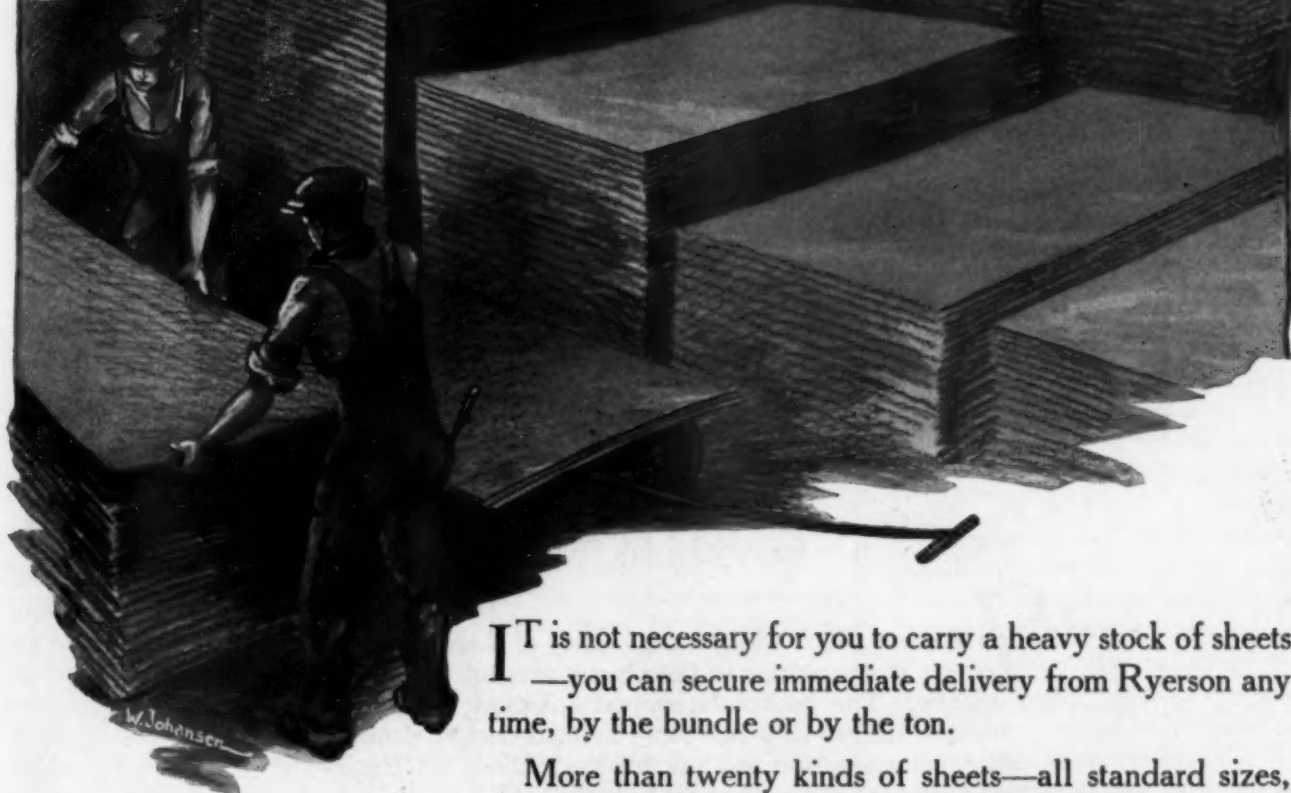
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### AN OPPORTUNITY

At the recent conventions of the National Association of Sheet Metal Contractors and of the National Warm Air Heating Association some very fine programs for carrying on the activities for betterment of the industries were promulgated. But it is not sufficient to expect committees to do all of the work. Every sheet metal contractor and warm air heating man should take it upon himself to offer his ideas and suggestions as to how best to work out these programs. AMERICAN ARTISAN gives you an opportunity to have your views aired. Let us have them. In this way they will come to the attention of the committee chairmen.



# Sheets for Every Purpose



IT is not necessary for you to carry a heavy stock of sheets —you can secure immediate delivery from Ryerson any time, by the bundle or by the ton.

More than twenty kinds of sheets—all standard sizes, gauges and grades are stored in heated rooms to preserve their finish. Draw on these stocks—there is a sheet for every purpose.

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Bars, Angles, Channels, Rivets, Bolts, and all other steel products which the sheet metal worker uses, can be delivered immediately from stock. See the current issue of the Ryerson Journal and Stock List for sizes carried at the various plants.

*Tools for the Sheet Metal Worker*—Benders, Turning Machines, Snips, and all the many sheet metal tools can be supplied by Ryerson. Every tool is backed by the Ryerson Guarantee covering both price and product. Write for catalog No. 27.

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# RYERSON

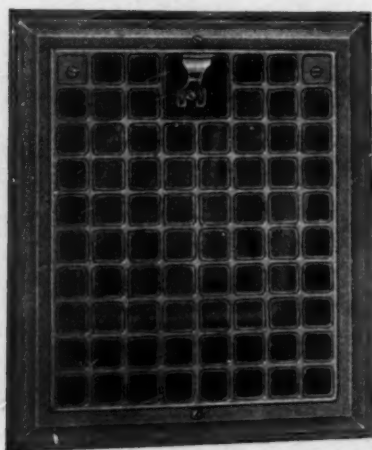
## 85 YEARS OF STEEL-SERVICE

Say you saw it in AMERICAN ARTISAN—Thank you!

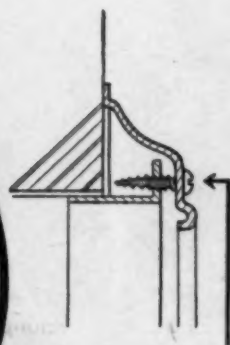
## Points that Distinguish the HART & COOLEY Line

Right angle flange and "sheet metal screw" help the installer

**No. 3**



No. 350. Vertical Sidewall Register with convex face



EASY TO DRAW  
REGISTER TIGHT  
AGAINST WALL

With pointed sheet metal screws, installer quickly fastens the face to the flange. No time is lost fishing for the holes.

*T*HE convex face adds to the beauty of design, and covers irregularities in the plaster around the wall opening. The backplate, or valve, opens easily on friction hinges to a full 90°. Refined design, simple, sturdy construction and fine finishes make H & C Registers as easy to sell as they are to install.

Architects, contractors and builders are quick to appreciate the extra advantages of the H & C line. It takes but little selling to make them see how H & C Registers enable home owners to get the fullest benefits of warm air heating. The experience of the trade clearly proves that H & C Registers help to get not only more of the average jobs, but also more of the better jobs where the artistic side is carried out in extreme detail.



# HART & COOLEY REGISTERS

Manufactured by THE HART & COOLEY MFG. CO., New Britain, Conn.

NEW YORK, 1 East 42d St.

CHICAGO, 61 West Kinzie St.

PHILADELPHIA, 1600 Arch St.

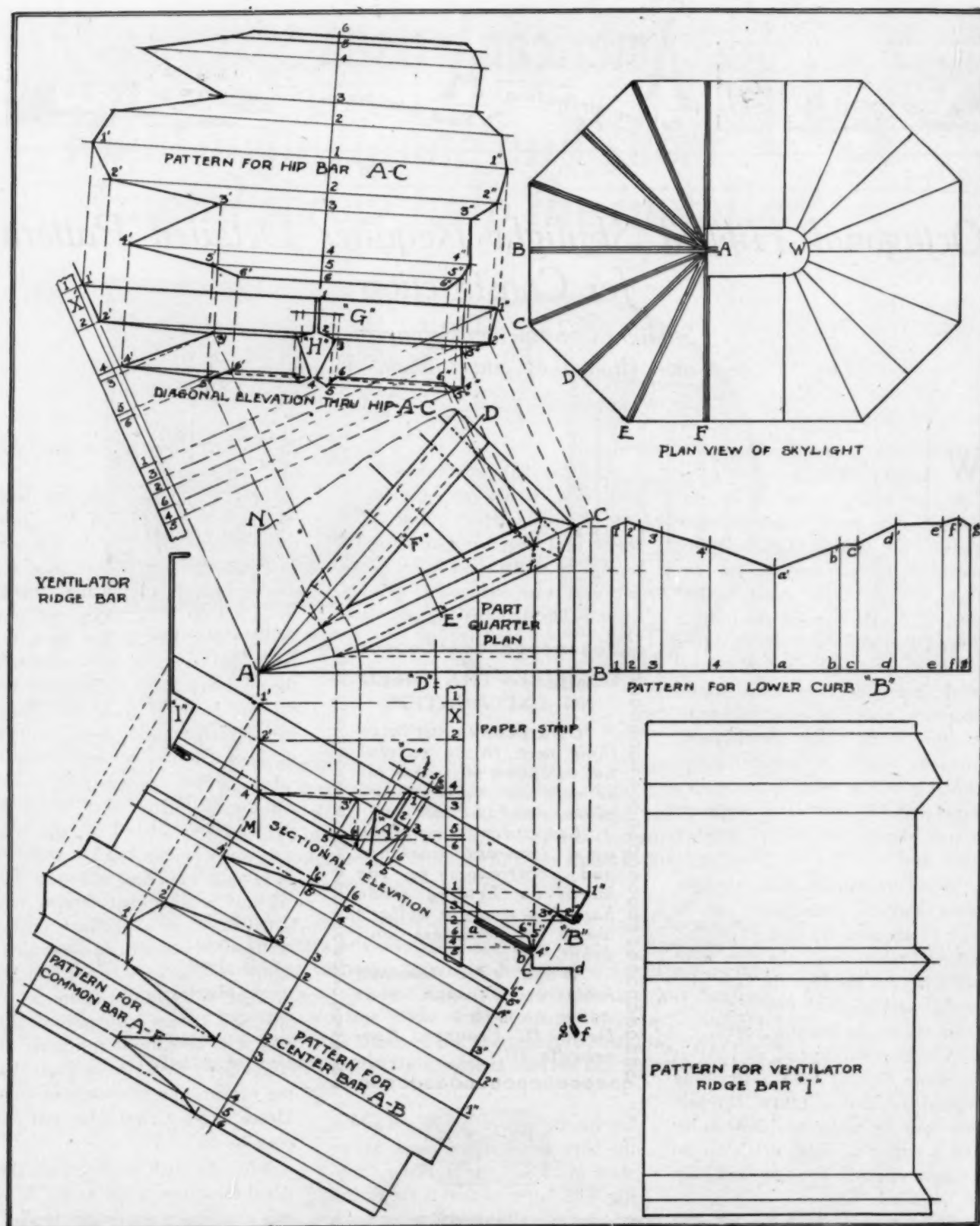
Western Warehouse at Chicago

**ALSO: COLD AIR FACES, CEILING VENTILATORS, GRILLES, RADIATOR ENCLOSURES**









Patterns for Octagonal Hipped Skylight

evenly from a sheet of metal. Thus a  $7\frac{1}{4}$ -inch girth will make four strips from a 30-inch sheet. If a large bar is desired to cover say 10 inches in girth, then only three strips

can be had out of a 30-inch sheet.

From each point as 1-2-3-4-5-6 of "A" draw lines parallel to 2'-2" and then at any place draw the lower curb "B," also the vertical miter

M-N, and the ventilator bar "I" if desired. From this elevation the pattern A-F can be developed, which would be all that is necessary for making a design as at W of

plan—only lengths must be adjusted to suit. Now at this time a part of the quarter plan should be drawn to conform with the sectional elevation. This is done carrying the glass edge 2" or curb line d up as A-B to the miter line C and the place the angle C-D as shown. Draw center lines A-C and A-D and then pick the common bar "A" projections from the line "C" as 1-2-3-4, etc., and place these distances as "D," also "E" and "F." Observe these lines must be perpendicular to the center lines, and then from the points on these lines draw the plan lines as shown. The several miter lines are next drawn.

To lay out the center bar A-B we take a compass at A and each of the points in the miter line and sweep them to the base line A-B. From here drop them into the sectional elevation as 3'-5'-6' and draw lines as shown. This gives the Jack bar miter effect and allows projecting the several points into the stretchout of the patterns, as 1'-2'-3', etc., in center bar pattern A-B.

Observe, from plan view, where A-C and A-E are hip lines, while A-B:AD and A-F are center bar or more like common bars, especially on the bottom ends. On a true octagon the hip lines would be alike, and we only need develop one hip bar, as A-C in this case. But where the plan is irregular so hip lines will be of different length, it is sometimes well to lay the others out separately. However, if the difference is slight one hip is sufficient and the difference in lengths can be easily adjusted.

Now observe, the plan gives the base line lengths, while the elevation gives altitudinals. So we take a paper strip X and pin it down, and on it we project all the altitudinals of sectional elevation as 1-2-3, etc. Observe, the difference in altitudinals is maintained on this strip, as 1-1, 2-2, 3-3, etc. When we transfer this strip as X' which is at right angles to A-C or parallel to A-1' of diagonal elevation, we can then reproject these altitudinals parallel to A-C of plan. By squaring up lines from each point of the miter

of plan as at C and A, we cross similar lines from X', and so this establishes the intersection. Construction lines are drawn so you can see how every point hangs together, which gives us points 1'-2'-3'-4', etc., as well as 1"-2"-3", etc.

Place a triangle on a tee square and line up to points 1'-1" of diagonal elevation. While in this position shift the triangle to see how points 2'-2", also 4'-4", line up. If they line up all right, your development is all right, and you can connect up the several points with lines. But if the lines do not come parallel, then some oversight was made and all lines should be rechecked. All lines as 1'-1", 2'-2", 3'-3", 4'-4", etc., must be parallel to one another. When you see they are not, you know something is wrong, and it is necessary to recheck. The lid miters can then be drawn as we show.

This hip bar has the same projections as the common bars, so we take the line "C" with all its points and place it as at "G," parallel to 1'-1". Square out line as shown and this allows for drawing the modified section "H" for hip. The points 1-2-3-4, etc., from "H" then become the true girth spaces to set off in pattern for hip, as 6-6. Observe the lines of section "H" are made to a bevel, so they will line up with the sides of the lights.

When this girth is stepped off as 6-6 lines are drawn parallel to 1'-1" and then from each point in diagonal section square out lines to cross those in pattern of similar number as 1'-2'-3'-4', etc., also 1"-2"-3"-4", etc. This enables drawing the miter lines and gives pattern for the hip A-C.

The pattern for the lower curb "B" is developed by picking the stretchout from section as 2"-3"-4"-a-b-c-d, etc., and set them off as 1-g, on the extended plan line, A-B. Erect stretchout lines and from each point in the miter line A-C of plan, where curb lines intersect, lines of similar numbers as 1'-2'-3', etc., to g'. Join these points with lines and you have the pattern for the miters at the lower curb, "B."

Ventilator bars as at "I" are sometimes made square cornered, as the side A of plan would indicate. This makes it easier to build and also to build a ventilator over it. Here, too, the square miter pattern is used and can be easily developed as numerous cornice miters we have considered in the past. All patterns, as we show, are therefore made to a convenient size, and these are used to mark off the full lengths.

Readers who will develop the enthusiasm to review this problem will be amazed how interesting such work is, and when you have mastered it—so you are right at home with it—you can then do a piece of laying out that many otherwise good men will fall down on. Men who find it easier to save themselves this extra effort and console themselves all such patterns are on the shop wall are badly mistaken. In sheet metal there are seldom two jobs alike in the average shop. It is only in the better organized shop where standardized conditions are provided and where again the conditions are made where a person is either somebody or nobody.

We have to dig deeper, travel faster, show a larger comprehension and be qualified to supervise a larger volume as well as variety of work. Men cannot get very far today working only their prescribed eight hours a day and not use some of the balance for personal preparation. More and more industries will specialize, gutter men will remain gutter snipes, furnace cleaners will remain vacuums, and heating men will be heating men, cornice and skylight men will have their division of beauty, health and light artists.

#### CORRECTION

On pages 63 and 64 of our August 11th issue there appears an article on the welding of furnaces. This article was published in conjunction with the article preceding it by S. W. Miller and was referred to by him. The origin of this article was inadvertently omitted and we wish to state that it was reprinted from the June issue of *Oxy-Acetylene Tips*.



# Getting Sheet Metal Business Through Constructive Suggestions

*Showing Prospect How Your Product Can Lessen Labor or Save Time Best Avenue of Approach*

**T**HE power of constructive, although seemingly inadvertent, suggestion is one of the greatest forces that the sheet metal contractor or salesman can employ in marketing his goods or services.

Retail merchants in all phases of selling recognize the potentialities of this type of selling. Practically all of the advertising appearing in magazines and periodicals is based upon an appeal, in one form or another, designed to suggest without seeming to the use of the object or service advertised.

Perhaps the reason why many sheet metal contractors and warm air furnace installers are not making a larger success of their business than they are is that they have no prearranged schedule of keeping in touch with former customers. Much valuable business may be attached by a concerted effort to keep in touch with former customers. The compilation of a list of property owners kept thoroughly up to date and worked continuously will go a long way toward keeping the shop busy.

Property owners for the most part are procrastinators when it comes to taking care of the little jobs that require attention around their places. Therefore the man who approaches them and makes the right kind of an appeal to get the work is the one who gets the business. Once he has gained an entrée, it is his business to see that he makes a friend of the owner by means of good workmanship, courteous conduct while on the job and a prompt, straightforward rendering of the statement when the work is completed so that the owner can check up immediately.

In the industrial field there are innumerable jobs which the contractor could get, and practically without competition, if he goes

about the matter in the proper manner. Here's a man who has a certain kind of process going on in his plant. Perhaps the present equipment is subject to excessive wear, making its rate of depreciation very high. An analysis of the situation may show the trained eye of the sheet metal contractor where by the installation of sheet metal much of this excessive wear could be eliminated. Perhaps by the installation of a tank or conveyor system sheet metal duct trunk line time may be saved in the process of manufacture or fabrication.

You get a call to repair a roof, for instance, and you find that the roof is in such shape that to repair the spot of the leak would mean more annoyance to the owner in a short time. In this case present well seasoned and logical reasons why the entire roof should be renewed instead of repairing it. If the building is occupied by tenants, show the owner where landlords have been sued for damage to the furniture of tenants because of inattention to leaks in the roof.

In writing advertising copy for the local newspapers, be sure to play up the suggestion idea. In this respect it has been found better to stress the position or benefit to be derived from the use of the article, rather than to attempt to imply those benefits by a negative advertisement which shows the predicament some owner got into by not using it. Appeal to the reader's desire for the comforts made possible by the use of the article or service advertised. In the case of the sheet metal roof this is very easily done, because of the many ways in which this type of roof has proved its superior merit—long service, fire proof, protection against lightning and beauty.

The best way to go after this

type of business is to meet the owner at his own convenience and by appointment. Have your facts well in hand so that you will convince by creating the impression that you know your "onions" in the matter of sheet metal roofs and all other types of roofing.

The man who hustles around after the work is the one whose shop is the busiest at all times. He knows that when times are a little slow the business must be gone after just that much harder; in other words, as business decreases a proportionately greater amount of effort must be put forth to get it if an even volume is to be maintained. It may cost more in dollars and cents to get, but if profits are to be maintained some such regime must be instituted. It will call for the highest type of salesmanship, but opposition is needed for development of the real salesman.

"How do you find business?" "By going out after it." Nothing truer or more direct to the point was ever said, and that is the way in which the live sheet metal contractor is getting a great deal of his business today—by going out after it.

## **Detroit Sheet Metal & Roofing Contractors Hold Annual Outing**

One of the most successful outings ever staged by the Detroit Sheet Metal Contractors' Association was held at Miller's Hotel, St. Clair Flat, on Wednesday and Thursday, July 25th and 26th. About thirty-five were on hand Wednesday morning to board the beautiful steamer, Tashmoo, which landed them at the Flats at 11 o'clock. Everybody got off the boat except Jack Clark, who was a little slow in getting his baggage collected and was carried on to the



next stop. About a half hour later Jack arrived by way of a speed boat and the party was complete. The ambitious ones started immediately to play baseball and indulge in such other sports as would promote a proper appetite for the meal which Mrs. Miller had prepared. All the afternoon was consumed with indoor and outdoor sports, mostly indoor. The first heat of the match race between Al. Berschbach, Sr., Bill Busch and Frank Ederle resulted in a tie. The second heat proved that Bill Busch was the fleetest on foot. He received a beautiful cigar lighter from Tom McGuire of the Flaxlinum Company. A late arrival was Roy Wilson of the Barrett Company, who arrived about three o'clock from Algonac by speed boat. Roy got busy at once and it was not long before he caught up with the rest of the party. An outing of this character would not be complete without someone falling into the lake, so Tony Reis kept up the precedent by stepping into about fifteen feet of water. Tony is not the only one that got wet, several of the boys went out in a speed boat and Tom Marshall happened to put his hand down in the water, which completely drenched the occupants of the back seat. Then, of course, they proceeded to give Tom a good soaking, and in doing this saturated Al Berschbach and Pierce Wright.

The aviators' test was won by Whitey Reindel. Whitey did not have much competition in this event, being the only one to complete the affair.

Many other events were held under the direction of Bill Amelung, chairman of the entertainment committee.

It was a strenuous two days, but an event which will not be soon forgotten by those who attended. At six o'clock Thursday evening the party boarded the Tashmoo and started the homeward journey, nearly all reaching home some time during the night. The committee in charge is entitled to a great deal of credit for the orderly manner in which they conducted this annual classic.

## Price Differential Reduction Effected on Michigan Standard August 15

*Definite Tonnage Guaranteed to Mills Because of Die-Stenciling and Extra Inspection*

**E**FFECTIVE August 15, 1928, Michigan Standard flat sheets will cost only five cents per one hundred pounds more than common sheets from the same mill. After that date no refund will be made to members on purchases of Michigan Standard. This is the announcement that has gone out from headquarters of the Michigan Sheet Metal and Roofing Contractors' Association to members of that association.

When the adoption of a Michigan Standard sheet was sanctioned by the board of directors of the Michigan Sheet Metal and Roofing Contractors' Association seven years ago, the committee in charge did not enter into this proposition lightly, but realized fully the tremendous task which was before them in making this a successful venture.

At that particular time, which was shortly after the war, the quality of sheet metal products was at a very low ebb; so much so that it was with reluctance that members of the association recommended to their customers the use of this material. The far-sightedness of the Michigan Standard Committee was a godsend to the association. They conceived the idea of adopting a trade-mark, licensing manufacturers to produce sheets under this trade-mark, which would conform to a certain standard of quality, and to assure this quality frequent inspections and analyses have been made by officials of the association.

In addition to raising the standard of quality of flat sheets another very important accomplishment has been realized, and that is the elimination of light gauges of eaves trough, conductor pipe and fittings. This fact alone justifies the judgment of the Trade Extension Board in the handling of this constructive program.

In order to finance this project, at the start, it was found necessary

that sheets and products carry a differential of 25 cents per one hundred pounds, five cents of which was retained by the mill and the other twenty cents was returned to the association. Later another arrangement was entered into with the J. M. & L. A. Osborn Company and the Superior Sheet Steel Company which allowed the mill ten cents and the association fifteen cents per one hundred pounds. Ten cents of the latter being returnable to the members who purchased the material. At a recent meeting of the Trade Extension Board, it was deemed advisable to make a substantial reduction in the differential on flat sheets. Both the Osborn Company and the Superior Sheet Steel Company have been working with the committee to figure out the lowest possible differential, without reducing the quality of the material. This has been accomplished, hence the announcement of the change.

To secure the reduction in the cost of die-stenciling and extra inspection it has been necessary for the committee to guarantee a certain annual tonnage. The committee was not the least reluctant in making this guarantee because they felt confident that the loyal members of the association would not only reach this amount, but would greatly exceed it.

### 75-Year-Old Metal Worker Makes Roosevelt Memorial Gates at Bismarck, N. D.

One thousand six hundred and seventy-three pieces of handwrought metal went into the making of the 1,000-pound Roosevelt Memorial Gate to be erected with ceremonies at the entrance to the grounds surrounding the Roosevelt cabin at Bismarck, North Dakota. One year of painstaking effort on the part of Haile Chisholm, seventy-five-year-old instructor in metal work at the North Dakota Agricultural College,

was necessary to complete the hand-built structure.

At the top of the gate appear the dates of Roosevelt's birth and death, with the letters "U. S." between the dates. Around the word "Roosevelt," which appears farther down the gate, are arranged letters representing the former President's accomplishments. "A" stands for "author," "S" for "statesman," and other letters forged represent hunter, rancher, educator, reformer, naturalist, President, diplomat and Governor.

A striking feature of the gate is the hand-made sliding latch with a handle on each side. The gate contains 994 pieces of ornamental metal, 394 rivets, 285 spacers, 344 welds and 1,141 holes. It is 7 feet 8 inches wide and 11 feet 8 inches high. The designer of the gate is Walter T. Rolfe.

#### **Tobin Bronze Effects Quick Repairs by Oxy- Acetylene Process**

Every sheet metal contractor is confronted upon occasion with the necessity of making quick repairs to some machine or other equipment. Many contractors have found odd jobs in welding a source of a handsome profit to their businesses.

Gas welding equipment is so easy to install and so simple to operate that its use has spread from the welding shop to thousands of garage repair shops, foundries, machine shops, manufacturing plants, and,

in fact, has become indispensable to industry where repairs must be made to cast iron, malleable iron, or steel parts.

The practicability of bronze welding and its possibilities as an important factor in making quick repairs to heavy duty machinery are made evident in the accompanying illustrations, Figures 1 and 2. The small and the large parts, Figure 2, fit together to form an upright pedestal that holds the sprocket bearings for a No. 49 30,000-pound chain draw bench. While operating, the chain broke, piled up under the sprocket, raised the shaft, and of course tore apart the cast iron shaft support plates.

A similar break that occurred in the past tied up this draw-bench for ten days until a new part could be cast and delivered from the foundry.

dry. As an illustration of the remarkable saving in time and money that Tobin Bronze and oxy-acetylene welding are accomplishing, these two broken castings were completely welded on the same day of the break, and returned to the drawbench stronger than before, and ready for reinstallation. The method of preparation and welding procedure follows:

The fractured parts were prepared for welding with Tobin Bronze by chiseling a vee about two-thirds the depth of the crack throughout the line of break. This was done in order to allow for a bond of sufficient strength to thoroughly unite the broken sections. The entire time spent in preparation of the two parts for welding, using up-to-date equipment, was about two hours.

Many welders grind down the welding areas before making a bronze weld. Practical experience and many tests, however, bear out the conclusion expressed in a report of oxy-acetylene committee of the International Acetylene Association to the effect that a chipped surface provides a better bond of the weld metal because the free carbon that exists in gray iron is not smeared over the welding surface as is the case when ground with an emery wheel.

The long casting with the smaller break was welded by two men in one and one-half hours, using two oxy-acetylene torches, one to heat

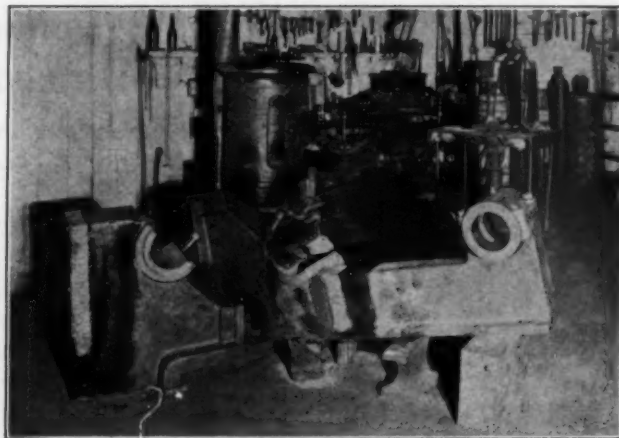


Figure 2—These broken castings were completely welded on the same day of the break, and returned to the drawbench stronger than ever, and ready for reinstallation.

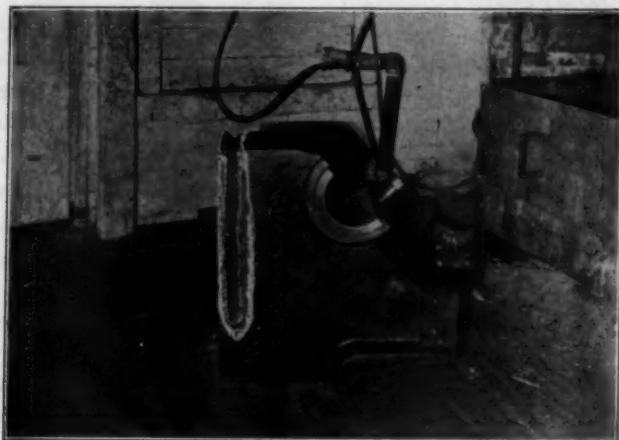


Figure 1—The fractured parts were prepared for welding by chiseling a vee about two-thirds the depth of the crack throughout the line of the break.



the casting ahead of the weld, and the other to melt the rod and do the actual welding. It was unnecessary to do any preheating on either casting other than to apply the inner cone of the torch flames on and adjacent to the welding surfaces for a few minutes before starting to weld.

Had the welds been made with cast iron rods, the story would have been entirely different since fusion welding would have necessitated preheating the castings for several hours in either a charcoal or a gas fire in order to minimize the danger of warping or cracking under the high heat. The actual welding time would also have been considerably increased.

With the welding areas at a good red heat the surfaces were "tinned" nicely with bronze and the weld was built up rapidly. Care was taken not to apply the inner cone of the flame or envelope being used to melt the bronze. The inner cone if applied to the rod has a tendency to burn the bronze, thereby affecting the strength of the weld.

The long casting was welded with 90 cubic feet of oxygen and 90 cubic feet of acetylene and 6 pounds of 1/4-inch Tobin Bronze welding rods. The short casting with the longer break was welded in two hours by two men in the same manner as described for welding the larger casting, using 118 cubic feet

of oxygen and 118 cubic feet of acetylene and 10 pounds of 1/4-inch Tobin Bronze welding rods.

Charles Gallo of the J. L. White Co., Inc., Waterbury, Connecticut, who did the work described above, states:

"Such examples as these typically illustrate the advantage of bronze welding to industries employing cast iron machine parts. With Tobin Bronze it is possible to make speedy and efficient repairs to parts that would otherwise be scrapped, and seriously retard production, due to loss of time awaiting the arrival of new parts. Then, too, the bronze weld when properly applied is always satisfactory."

## *Lutheran Congregation at Sedalia, Mo., Worships Under Protection of Copper Covered Tower*

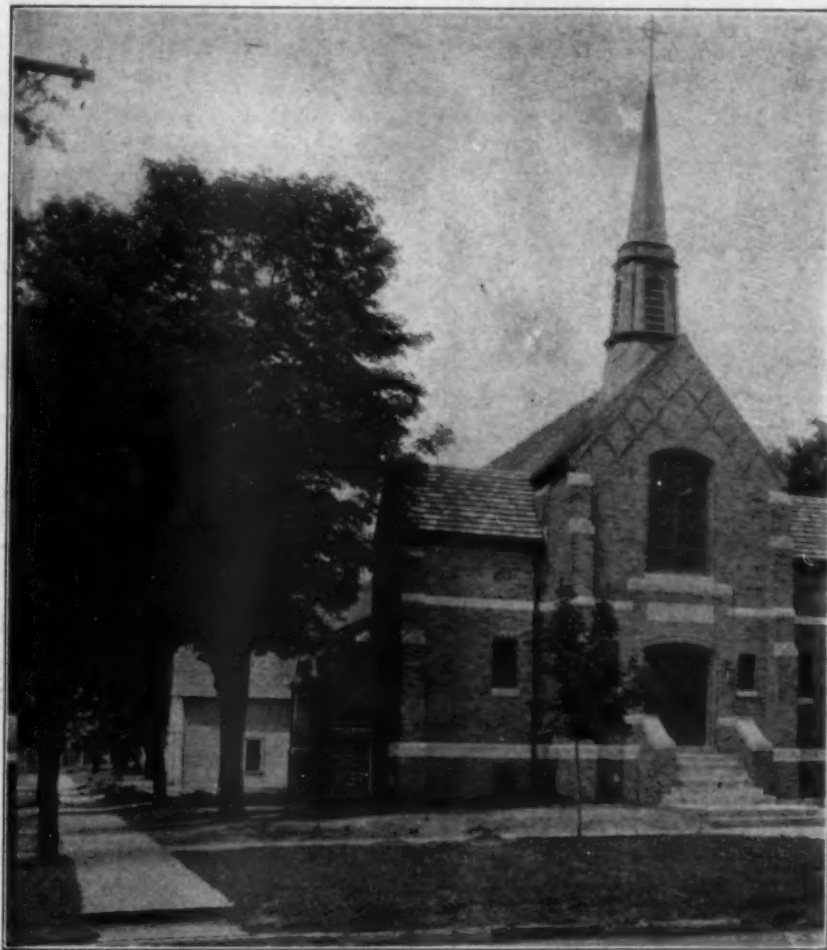
*Copper Tower Covering, Gutting and Down Spouting Applied by P. Hoffman Hardware Co.*

**C**HURCH steeples and high towers appear to be peculiarly susceptible to being struck by lightning. Such structures seem to afford a convenient means of relieving the tension between the ground and the atmosphere above present during a thunder storm.

Determined that the steeple upon their new church building should not suffer the all too common fate of such structures, the building committee of St. Paul's Lutheran Church, erected at Broadway and Massachusetts Avenue, Sedalia, Missouri, impressed strongly upon the architect the necessity for having the steeple lightning proof as well as weather proof, advancing at the same time, a demand for as much of the artistic as possible under the circumstances.

The architect recommended copper to cover the requisites, and so the gutters, down spouts, valleys, flashings, etc., were fashioned from 16-ounce copper. The tower itself was covered with 20-ounce cold rolled copper.

The inside frame work of the tower was constructed of steel,



St. Paul's Lutheran Church, Sedalia, Missouri.



painted and covered with paper. "More than a ton of copper was used on this job," said A. M. Hoffman, of the P. H. Hoffman Hardware Company, who did the sheet



Copper covered steeple.

metal work, "and there is not a square inch of ferrous metal exposed on the job." P. J. Bergmann and Victor Williams, of P. H. Hoffman Hardware, did the actual work

on the job, and they are very proud of their handiwork, as is the entire ally good advertisement for the P. H. Hoffman Hardware Company.

The architect was Theo. Steinmeyer, St. Louis, Missouri.

#### Whitney Metal Tool Company Has New Punch

A new lever type punch has been added to the line of the Whitney Metal Tool Company, which is very similar in outer appearance to that of our No. 7 and No. 8 Imperial roller bearing punches, having the exclusive feature of the upper han-



The Punch.

dle being arranged to punch standing seams or inside of 90 degrees.

This punch is a division between the No. 7 and No. 8 of the lever type punches in weight, capacity, and price, the capacity being  $\frac{1}{4}$  inch hole through  $\frac{3}{16}$  inch plate; weight  $10\frac{1}{2}$  pounds.

The Whitney Metal Tool Company of Rockford, Illinois, will gladly furnish complete information on this new punch.

#### The Wheeling Corrugating Co. Opens Columbus, Ohio, Branch

The Wheeling Corrugating Co., Wheeling, W. Va., has opened a branch warehouse at Columbus, Ohio.

H. C. Dickey will be in charge of this office. He comes from Buffalo where he managed a Wheeling branch for several years.

The new branch office will carry a complete stock for the Ohio territory including roofings, wire nails, barb wire, metal shingles, stovepipe, metal ceiling and household products.

#### Sheet Metal Industry Can Make Its Own Men

Soon after the immigration restriction law was passed three years ago, which, by means of limited quotas for foreign countries, greatly cut down the number of annual alien arrivals, a factory superintendent called a plant staff meeting. He wanted to check up with his employment manager and his foremen how they would fare as regards help under the new law.

"If we find it harder to get common labor, or half-skilled labor, we want to know it early. If we will have to pay more because of a labor shortage we want to know it now," he said.

The general manager happened in during the course of the meeting and listened to the discussion. He was wise in his generation. He believed that a better way than "telling" is to help men see things for themselves and think out a problem to a working conclusion. This is the way to development.

"Well," he said, "let us take for granted that we will be short of men and that we will have to pay more. What difference will that make to us?"

The reply was obvious and it came in chorus: "The difference will be that if we pay more we will have to get men that are worth it. If good men will be harder to get, we will have to put in extra effort to get and hold them." Also sound reasoning.

"Fine," said the general manager. "That's the picture. Now, instead of putting off the getting and holding of the right men, suppose we take it for granted that the tight situation is on us here and now. We can start picking our men and handling them on the basis of a rising cost of men. You'll do wonders if you have that slant on your manpower. Why wait for the man-market to give us what we need? Start the policy *we make our own men*, and you can forget the rest." This is the spirit in which the sheet metal industry should meet this same problem.

## Random Notes and Sketches

*By Sidney Arnold*

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

On Wednesday of this week I had the pleasure of a visit from "Trow" Warner, sales manager of Tuttle & Bailey Register Manufacturing Company, New York. Mr. Warner was on his way to the Chicago office of his company, where Dave Farquhar holds forth. He and Dave expect to spend some time in the wilds of Wisconsin; that is, they expect to, provided, as Trow expressed, they do not get too far away from a golf course. What would a vacation be without a golf course? Well, here's hoping they take their respective wives along, and have a good time.

\* \* \*

### Your Wife Gone to the Country

Junkman: "Any rags, paper, or old iron to sell?"

William F. Wahler, 3715 Elston avenue, Chicago (head of the house): "No, go away, my wife is away for the summer?"

Junkman: "Any empty bottles?"

\* \* \*

### No Thrill in It

Married Reveller: What does your wife say to you when you stay out—hic—as late as this?

"Nothing. I'm not married."

The married man frowned.

"Then why," he said, "do you stay out—hic—as late as this?"

\* \* \*

### Where Money Flies

Harry Detmers, Chicago: I'm leaving now, so I'll settle up. Can you change a \$100 bill?

Night Club Manager: Stay ten minutes and I won't have to.

\* \* \*

R. C. Walker, president of the Midland Furnace Company, Columbus, Ohio, recently bought a number of signs reading, "Do It Now," and had them hung around the office, thereby hoping to inspire his people with promptness and energy in their work. In his private office one day a short time later Roy Was-

son of the Lennox Furnace Company asked him how the scheme affected the staff. "Well, not just the way I thought it would," answered Mr. Walker. "The cashier skipped with thirty thousand dollars, the head bookkeeper eloped with the private secretary, three clerks asked for an increase in salary, and the office boy lit out to become a highwayman."

\* \* \*

### Two Points of View

A man who had just lost his wife said to a friend, who happened to be fresh from a reminder at home that he was very much married:

"I tell you, old man, it is hard to lose a wife."

"Hard!" said the henpecked husband. "Why, man, it's impossible."

\* \* \*

### A Long-Distance Lecture

A pretentious person recently said to a prominent resident of a New Jersey town: "How would a lecture by me on Mount Vesuvius suit the inhabitants of your town?"

"Very well, sir; very well indeed. A lecture by you on Mount Vesuvius would suit them a great deal better than a lecture by you in this town."

\* \* \*

### Matching Wits

A Californian and a New England sheet metal man were matching stories.

"Why," said the Californian, "we grow cabbage so big that an army of soldiers can camp under one."

"That is nothing," said the New England sheet metal man, "we make copper kettles in New England so big that a thousand men can be riveting one and yet be so far apart they can't hear each other hammer."

"Go on," said the Californian, "what would any one use a kettle of that size for?"

"Why, to boil your California cabbage in," said the New England sheet metal man.

Counsel (examining Harry Jones, Indianapolis, witness): "You say you saw the shots fired?"

"Yes, sir."

"How near were you to the scene of the affray?"

"When the first shot was fired I was about ten feet from the shooter."

"Ten feet. Well, now tell the court where you were when the second shot was fired."

"I didn't measure the distance."

"Approximately, how far should you say?"

"Well, I should think that it would be about a mile and a half."

\* \* \*

### It's Been Done

Small boy: "Mamma, are you going to get that fur coat from papa for your birthday?"

Mrs. Albert J. Wagner, Chicago: "No, Darling."

Albert J., Jr., who was then still a small boy: "Have you tried throwing yourself on the floor and kicking with your feet like I do?"

\* \* \*

In Ames, Iowa, there is a butcher who is famed for selling tough meat. W. R. Haines of that city went in one day to purchase some.

"Certainly," said the butcher. "Is it for frying or boiling that you want it?"

"Neither," replied Mr. Haines. "It's to make hinges for the stable door."

\* \* \*

Kind Old Party: "I hear you buried your wife yesterday, Mr. Knapp."

"Vell, Mein Gott, I had to. She was dead."

\* \* \*

### The Local Salutation

"What struck you the first time you visited Chicago?"

"A blackjack."

\* \* \*

### Reward

The Professor: "Let us take the example of the busy ant. He is busy all the time. He works all day and every day. Then what happens."

The Bright One: "He gets stepped on."



# Static and Velocity Pressure as Applied to Hot Blast Heating Equipment

## Methods of Determining Fan Efficiency Outlined

By T. W. TORR\*

**T**O be able to select the proper type of fan that will be best suited to fulfill the conditions it is necessary to have an understanding of static pressure and velocity pressure.

Static pressure is the compressive pressure existing in the air and is a measure of its potential energy. It may exist in the air at rest or in motion and is virtually the means of producing flow and maintaining it against resistance.

Suppose we have a cylinder filled with air and a piston with which we compress the air. Having compressed the air by forcing the piston towards one end of the cylinder a certain distance we allow the piston to remain in that position thus keeping the air compressed.

Now if we have a small hole in the bottom of the cylinder to which there is connected a length of pipe we have the compressive pressure within the cylinder to cause a flow through the pipe. The expansion which takes place as a result of compression causes the flow which will continue as long as there is compression for expansion.

The pressure which keeps up this compression which virtually causes the flow is called static pressure.

When we have air in a cylinder and compress it by a piston this compression is attained statically; that is, by a direct push on the air by the piston. But a fan compresses the air dynamically; that is, by impact of the blades against the air.

The velocity head or pressure is defined as the pressure which is required to create the velocity flow. That is, the pressure or head required to accelerate the mass from a state of rest to the final velocity

attained or that would cause a stoppage of the flow.

Static pressure may be transferred into velocity pressure and velocity pressure may be transferred into static pressure. These changes, however, always results in a loss in efficiency the extent of which will depend on conditions.

Thus the static pressure accumulated in a plenum chamber is partly converted into velocity pressure as the air enters the ducts; hence, the necessity for the plenum chamber.

Again, if the duct is gradually enlarged the velocity pressure will be reduced and the static pressure increased. This is termed "regain of static pressure."

If the area of the pipe is decreased there will be a regain of velocity pressure. As above stated these changes will always represent a loss in total pressure.

This emphasizes the necessity for carrying out the details of the duct system exactly as planned.

In figuring the resistance to a flow of air in a duct system it is necessary to take into consideration static pressure and velocity pressure for the total or dynamic pressure as explained in Chapter V.

### Fan Efficiency

Fan engineering is a very extensive branch of mechanical engineering. Its laws have been set up after many, many years of research.

Research and experiment by competent engineers will continue to broaden our knowledge of fan engineering just as every other mechanical science is advancing.

There are two types of fan that apply to our particular application—The disc, or propeller fan, and the centrifugal fan or blower.

The disc, or propeller fan, can be of the two blade type as is used on

the airplane. The curved blade type, which generally has four or more, and the straight blade fan, the blades of which also vary in number. The number of blades, their shape and pitch will have their effect on the efficiency of the fan.

It is a notable fact that the most efficient type of propeller would be the least efficient as a fan or blower would be the most inefficient propeller.

The best example of the highly efficient propeller is the airplane propeller. Here we have the two blade fan. The blades are set at a very acute angle and are driven by a high powered engine. The impact of the blades against the air compresses it to a very high degree. The resistance of this highly compressed air against the propeller blades at the angle they are set forces the blades forward and they draw the plane after them. As the speed of the engine is increased pressure of the air against the fan blades is increased, the plane is moved along the ground and lifted into the air.

This fan produces a powerful propelling force and there is a great rush of air from the blades. This might lead the unsuspecting to believe this type of fan to be efficient in producing a flow of air through a duct system.

In chapter seven we have explained it is necessary to produce static pressure to produce flow. The propeller will produce static pressure but it does it very wastefully. Just as soon as the air from the blades of the propeller fan is confined in a duct system and static pressure is accumulated there will be slippage of air back through the blades of the fan.

Keeping up the pressure under these conditions can only be accom-

\*Heating Engineer Rudy Furnace Company.



plished by speeding up the fan at a tremendous waste of power; hence, the inefficiency of this type of fan for our application.

Increasing the number of blades increases the efficiency of the fan for driving air through a duct system. But at no time does the disc or propeller fan approach the efficiency of the centrifugal or blower fan.

The application that offers the least resistance to fan performance would be the running of a disc fan within an enclosed space where the fan would simply circulate the air around and through itself. The ordinary house fan would be a good example. The fact that the house fan creates considerable breeze is no indication whatever of the amount of air it will handle against resistance.

The disc or propeller fans are primarily ventilating fans. They operate at their highest efficiency when the outlet is free; that is, when there is little or no resistance against them. On the other hand, the centrifugal fan operates most efficiently against pressure.

The volume of air to be handled and the resistance to the flow are among the factors which determine the size and type of fan that will best fulfill the requirements. In performance there is a wide difference in the two types.

A disc fan run at constant speed against a certain pressure will require a certain amount of power and will move a definite volume of air.

Now assume the fan speed is still held constant or the same as before, but the pressure against it is increased. We will have a drop in the volume of air and an increase in power to drive the fan.

Let us now operate a centrifugal fan under similar conditions; that is, at constant speed against a certain pressure and note the air volume and power required. With the pressure increased and the fan operated at the same speed as before there will be a decrease in air volume as was noted with the disc fan,

but there will also be a decrease in power required.

The Rudy engineering depart-

does not recommend direct connected units for any other than very simple booster applications.

## Greater Chicago Warm Air Men Gradually Overcoming Snags Struck

*Dragnet Soon to Show Up Offenders of Law to Their Displeasure*

THE Greater Chicago Warm Air Heating Association held its regular meeting at the Sherman Hotel, Chicago, Monday evening, August 13, with President L. M. Burt officiating.

From the trend of the discussions which took place at that meeting, the members in good standing are not entirely satisfied with the manner in which the new ordinance is being handled by the city building department. The lack of energy displayed in putting the complete machinery into motion is very discouraging, but never-the-less these men are not losing hope of the ultimate good which the whole matter will bring about. They expected obstacles to be encountered, nor were they disappointed in their anticipations in this respect. They surely have had them and aplenty.

As the matter stands now the building department's records show that up to the date of August 13th a total of 34 warm air furnace installers had applied for licenses. Of this number only half of them have made application for the bond. This hesitancy on the part of the installers to get in line for the bond was given explanation by President Burt, who voiced the opinion that a great many of these men who have not made application for the bond have not had the business to warrant their taking out the surety bond. He expressed the further opinion that as soon as these men began taking in the business they would line right up on the surety bond proposition. President Burt offered as a suggestion that those who have not fulfilled all of the requirements of the law in regard to the license and surety bond had better be about it as soon as it is pos-

sible, because a dragnet is soon to be thrown about the city to bring to light all offenders of the law.

President Burt conjured all members of the association to be on the lookout for offenders of the law and to report them. There seemed little need for this admonition, because the furnace installers who have come through with the requirements of the law to the full are not likely to allow any of their brethren to get away with anything, if they can help it.

Some statistics regarding the number of permits issued since the law has been in effect ran as follows:

February .....	46
March .....	100
April .....	93
May .....	25
June .....	126
July .....	500
August (to the 13th)....	13

Total..... 903

This number is expected to increase very rapidly from now on.

A discussion of the status of Harris Brothers, Sears, Roebuck & Company, and Montgomery Ward & Company was also undertaken at the meeting in an attempt to determine whether or not these companies can be classed under the heading of furnace installers or not.

It was also revealed that another organization of furnace men is attempting to work out an arrangement whereby the association as a unit can cover bonding needs.

Members present also had their attention called to the saving to be effected by transferring their insurance to the Hardware Mutual Insurance Company, Stevens Point, Wisconsin.

## Indiana Sheet Metal and Warm Air Furnace Association to Meet at New Castle

September 14th All Indiana Sheet Metal and Furnace Men Invited

THE third district meeting of the Sheet Metal & Warm Air Heating Contractors' Association of Indiana is to be held at New Castle on September 14th. Elmer Livezey of New Castle is general chairman of arrangements. Members of the general committee and subcommittees will be announced later. The first meeting, held at Fort Wayne, and the second, held at Vincennes, were very successful. Like those meetings, the New Castle meeting will be sponsored and organized by the Sheet Metal Contractors' Association, but it will be a meeting of the entire trade at which non-members and also representatives of jobbers and manufacturers will be welcome.

Mr. Livezey does not plan to send out special invitations, but depends upon notices and articles in the trade publications to extend the invitation for him. Quite a few persons, especially salesmen and manufacturers' representatives, failed to get to the Vincennes meeting on account of not understanding in time that they were invited. It is hoped that it will be understood that every sheet metal and warm air heating contractor in Indiana and every salesman or representative connected with jobbers or manufacturers selling the Indiana sheet metal and furnace trade is invited to the New Castle meeting.

The meeting will be preceded by a board meeting of the directors of the state organization, at which convention plans will be inaugurated. This will be followed by a dinner, in which all guests will participate, and an informal get-together session designed to promote more cordial relations among all concerned.

The feeling of the craft in Indiana toward each other is very good and these district meetings have had a great part in promoting this good feeling. It is the inten-

tion of the association to continue its work along this line for the purpose of bringing about the best possible spirit among the Indiana trade and not essentially of writing memberships in the organization, as it is felt that if there is the best of feeling among the contractors and among the other elements of the trade, memberships in the association will follow as a matter of course without an insistent effort to write them.

### What the Public Is Learning About Air Washers

H. H. Keeler, writing in the *Cleveland Plain Dealer*, traces the heat requirement of the ordinary residence during the past few generations in the following article:

It is but a few generations ago that a temperature of about 55 degrees Fahrenheit in our homes in the winter was considered comfortable. Those were the days of log or stone houses with few windows and doors. They had big, open fireplaces with kettles always simmering close by them. In England today a temperature of 60 to 65 degrees Fahrenheit is considered comfortable. We in America live and work in homes, apartments and offices where temperatures range from 70 to 75 degrees Fahrenheit during the winter months. We have no kettles simmering by the fire, however, to put the moisture back in the air that these higher temperatures require to maintain comfortable and healthful conditions.

Humidity, or the percentage of moisture in the air we breathe, is of great importance to the health and happiness of a modern home. Experiment conducted by many leading physicians, medical colleges and the health department of the United States government have disclosed the fact that the relative humidity in most homes during the winter

season is much too low—in fact is as low as that of the Sahara Desert. It has also been proven that a relative humidity of 45 to 50 per cent at 68 to 70 degrees Fahrenheit is most healthful and comfortable.

The larger theaters, schools and office buildings spend hundreds of thousands of dollars for air washing and conditioning equipment, but the average housewife still clings to pans of water to supply moisture. It is obvious that they are woefully inadequate when it is realized that one-half gallon of water must be added to the air each hour in the average home to maintain the proper humidity for health and comfort.

It is now possible to have an air washer and humidifier in your home at very moderate cost. This device automatically washes the air and evaporates the right amount of water to keep the air at 45 per cent to 50 per cent relative humidity at a room temperature of 68 to 70 degrees.

The Zephyr Washed Air System is an apparatus consisting of a copper box concealed in the wall with a small ornamental grille close to the ceiling, and one about five feet from the floor. Two sprays of water flow constantly through the box and draw the hot, dry air in by suction at the top, wash and humidify it and expel through the lower grille at what is called the "breathing line."

The effect of washing the air is to give it that fresh, cool, invigorating quality often felt on a spring day after a shower. Dust, cooking odors and tobacco smoke are washed out of the air. The air is as refreshing as a lake breeze instead of having that hot, dry feeling that leads to colds, throat and nose irritations and skin troubles. The chairs, pianos and woodwork do not dry out and crack or check. Plants and flowers retain their freshness because they breathe through their leaves and require moisture to thrive.

This device is easy to install in new homes or those already built. One is usually sufficient in the aver-

(Continued on page 108)

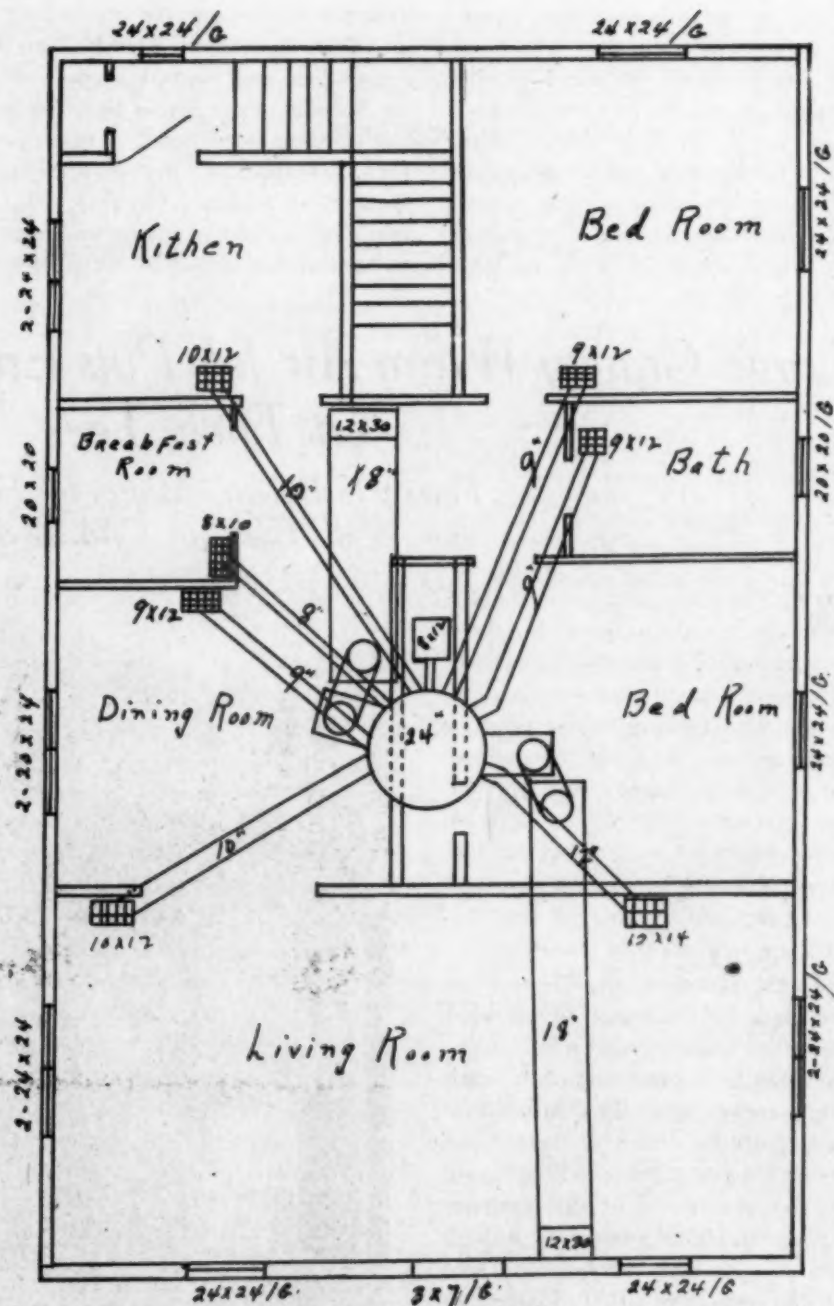


# WHAT WOULD YOU HAVE BID ON THIS JOB?

IT is indeed lamentable that more warm air furnace installers operating throughout the country have not a higher standard by which to guide them in the matter of prices for their work. If they could only be brought to realize the harm they are doing the industry by their price cutting methods, how much better off they would be. Cutting the price under that which will permit of doing good work and a legitimate profit on the job never made anyone rich, nor has it ever aided in the building of self respect.

A letter came to our attention just the other day in which the following specifications were required of the warm air heating system:

"Furnish and install where shown on plans, or directed by contractors, one 35,000 cubic feet furnace, fire pot size and grate area not less than 24 inches diameter,



Floor Plan of Installation in Which Price Cutter Took Job.

with warm air pipes as follows: Living room to have two 10-inch pipes with 14 by 14 registers; dining room to have 10-inch pipe, 10 by 14 register; bed rooms to have 9-inch pipe, 10 by 12 register; bath and breakfast rooms to have 9-inch pipe, 10 by 12 register; kitchen to have 10-inch pipe, 10 by 12 register. Furnace contractor to install three cold air returns to equal air in capacity of warm air pipes. All registers and cold air faces to be Tuttle & Bailey Cobble design. Connect furnace to flue with 24-gauge gal-

vanized pipe, 9 inches in size. Warm air pipes to be galvanized iron and wrapped with 14-oz. asbestos paper. All elbows, angles and register boxes to be asbestos covered. All work to be done in good workmanship manner."

The warm air heating contractor who sent this sketch in to us put in his bid of \$248.30. The job was located thirteen miles from his place of business, but he was unable to secure the contract. The price quoted was underbid by a local man. A second local man who had bid



on the job failed even to have a look in, because the contractor who took the job poisoned the mind of the general contractor by telling him that the second local furnace man could not possibly follow the specifications or give a job that would meet the conditions.

"When such firms as the one who

took this job," wrote the contractor, who lost the job at \$248.30, "are approached and handed a copy of the Standard Code, many times they tell us they have been in business for 35 years and have installed a number of furnaces in years past, implying, of course, that they need no special instruction in the matter

of installing furnaces."

The job was figured according to the Standard Code and laid out in the manner shown on the accompanying illustration, but still the contractor lost the job because of his lowest possible bid of \$248.30. What would you have bid on this job?

## Large Gravity Warm Air Job Puts Engineer and Installer on Their Toes

*Finesse in Balance Makes Job Function Well Even in Cold Weather*

**W**ARM air furnace installers sometimes question in their own minds the possibility of employing a gravity warm air heating system in a building whose proportions are the least bit unusual or larger than ordinary. On whether the contractor has the courage of his convictions or whether he has any convictions to have courage about depends whether he gets any of these unusual jobs or not.

In the accompanying illustrations we show an installation of the kind described above toward which many an installer would approach with some trepidation. This installation is out of the ordinary, there is no gainsaying that, but it is functioning to the satisfaction of the occupant of the dwelling who gives it high praise. The installation itself is that of the parsonage of St. John's Lutheran Church, Dubuque, Iowa. It was designed by James Charles Allen, heating engineer, and installed by the Justman Sheet Metal Works, Dubuque.

The building is a 3-story structure. The kitchen is heated with a 16-inch run which also chambers 3 and 4 above by means of a No. 12 stack.

The 12-inch basement lead next to the kitchen run supplies the No. 12 stack to the third floor school room No. 6.

A 16-inch basement lead supplies the dining room, chamber No. 1, the bathroom and also school room



St. John's Lutheran Church Parsonage in Which Warm Air Furnace Installation Was Made.

No. 7 on the third floor.

The living room is supplied by a 14-inch run.

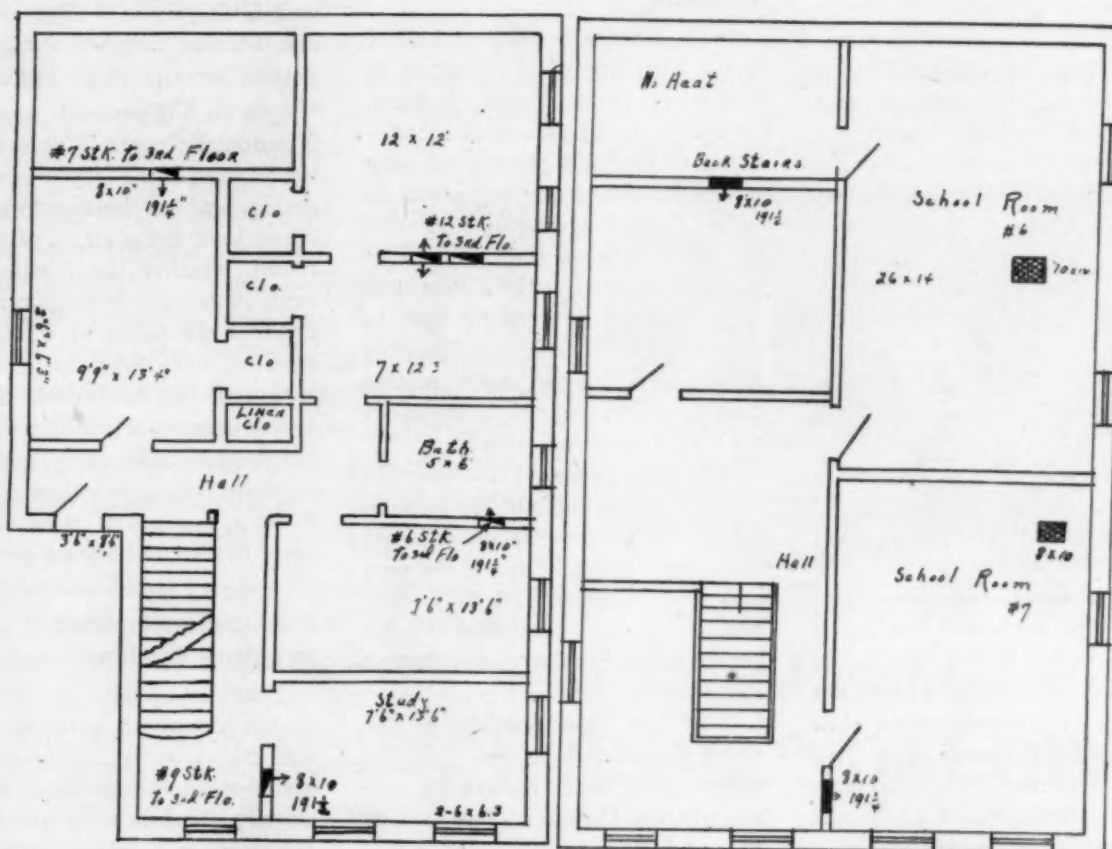
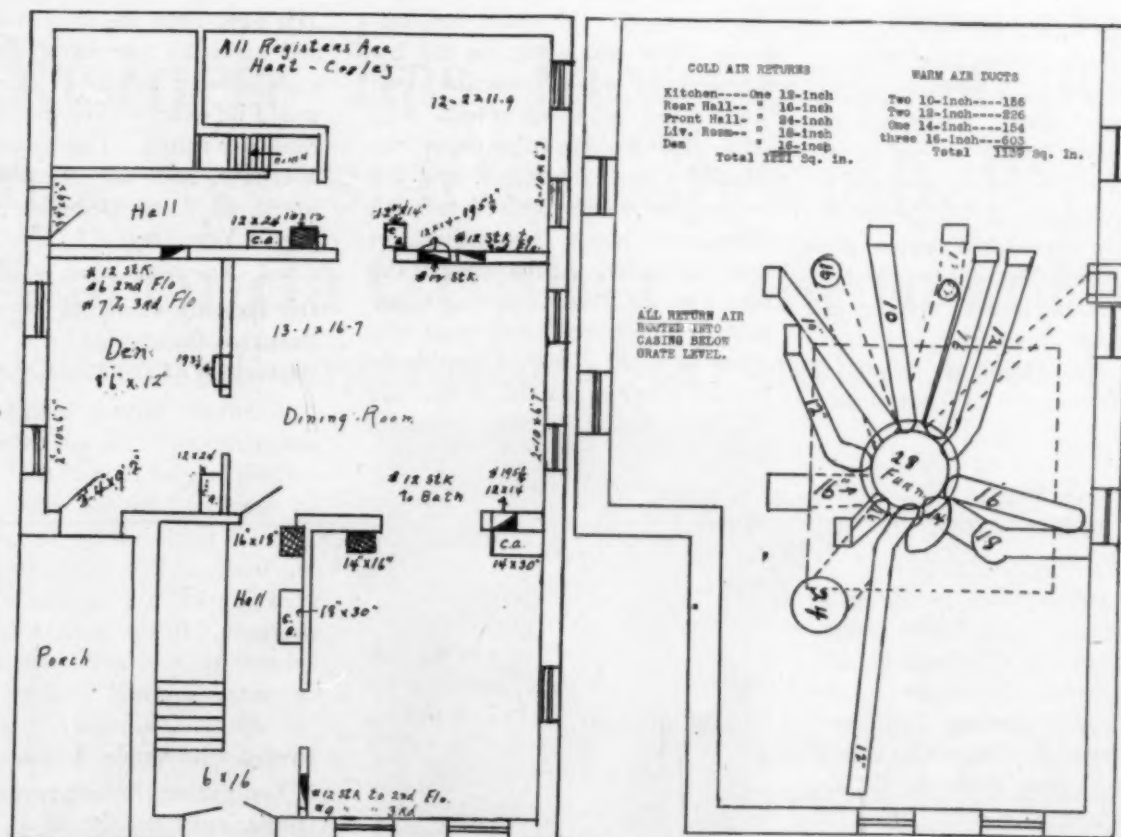
A 16-inch run conveys heat to the hall on the first floor, and a 12-inch run heats the den on the first floor. Chamber No. 2 on the second floor and class room No. 5 on the third floor. A 10-inch supplies the rear entrance hall.

The 16-inch rear entrance hall allows for taking outside air by opening entrance door.

The returns are taken as follows:

A 12-inch from the kitchen; a 16-inch from the den; an 18-inch from the living room; a 24-inch in the hall takes all of the return air from the second and third floors.

Here is a large gravity job that is giving perfect satisfaction because it is properly engineered. It requires a very delicate balance to make a job of this nature function properly, but the fact that it can be done is proved in this case. Both the engineer and the installer deserve a great deal of credit for this job.



Floor and Basement Layout of St. John's Lutheran Church Parsonage, Dubuque, Iowa.

### AIR WASHERS

(Concluded from page 104)

age home and two or more in the very large homes. There are no moving parts to get out of order and regular city water pressure is all that is required to operate it. It is made entirely of copper and brass and will last as long as the house. Leading architects and engineers indorse this device and many of the newer homes are having it installed before the lath and plaster is put on.

### Grand Rapids Warm Air Heating Engineers Hold Annual Picnic

About one hundred people gathered at Camp Lake Resort Saturday, August 4th, to attend another very successful picnic staged by the Grand Rapids Heating Engineers' Association. The threatening clouds that were hanging in the sky did not seem to have any effect upon the joviality of the crowd. The majority of the men worked up sizable appetites by pitching horse-shoes before entering the dining room to do justice to a splendid chicken dinner.

Following the meal Harry Rhodes took charge of the meeting and after a few remarks called on Frank Ederle to explain why the State Association was not holding a summer outing. Frank did a good job of explaining this point, but just could not satisfy Harry that a mistake had not been made. Well, Harry, everyone has a right to hold their own opinion. Because of the program of sports Vic Heather and his committee had planned, no further talks were called for.

As the crowd left the pavilion Gus Ederle got the association's new movie camera in action and "shot" a few scenes of the happy gang. Sports of all kinds furnished plenty of entertainment for the afternoon. Clothespin races, slow motion race and several others produced lots of fun. Ike Lammers and Al Nydam proved to be the slowest movie pair among the active members, but lost the race to Mr.

Alexander, Jr., by about ten seconds. The last event on the list proved the most comical. Don Lamoreaux produced several rolls of familiar looking crepe paper, not usually found at picnics, and the contestants were required to push these rolls about twenty-five feet with their nose. At the finish of the race a pretty scene of flowing paper made it impossible to determine who won the race. This concluded the regular program and the curtain had dropped on another very successful affair.

### Wants Formula for Mixing High Grade Red Paint

TO AMERICAN ARTISAN:

Will you please have some of the old tinnerns give their formulas for mixing high-grade red paint to paint Spanish metal tile tin roofs?

Yours very truly,  
Young Hardware Company.  
August 10, 1928.

### New Calendar System Is Now Advocated

In an address before the United States Chamber of Commerce in session at West Baden, Indiana, George Eastman presented the disadvantages of our present calendar system, and the many arguments in favor of adopting the plan suggested by the League of Nations. Attention was directed to the almost universal demand for reform and to communications received by the promulgators of the movie in this country from churches, business organizations and individuals.

Mr. Eastman stated that the plan which has met unanimous acclaim is called the International Fixed Calendar. It would divide the year into 13 months of 28 days, each comprising four complete weeks, beginning on Sunday and ending on Saturday.

The extra month would be inserted between June and July by grouping the last 13 days of June and the first 15 days of July to form the mid-year month "Sol," that would absorb the 29th, 30th and

31st days from the present months, and make 13 months of 28 days each. Every month in every year would be exactly alike in dates and week-day names. This accounts for 364 days, and the remaining day would be dated December 29 and named Year Day.

### Oil Heating Institute Prepares Booklet on Perfection of Oil Heaters

Warm air furnace installers who are interested in the sale of oil burners will be glad to learn that a booklet entitled, "Are Oil Heaters Perfected?" published by the Oil Heating Institute, 420 Madison Avenue, New York City, has made its appearance. In this booklet questions relative to "heat when you want it," "even temperature," "safety," "quiet operation," "economy," are answered with ample discussion.

The perfect heater, says the Institute, must be capable of supplying maximum heat when it is needed and of shutting itself off when the need is past. The modest looking thermostat that decorates the wall is the furnace man, and—unlike furnace men of a fast-disappearing era—it is always faithful and never forgets.

Automatic control, according to the booklet, is the only means of insuring uniform heat—warmth that keeps June in the air all of the year round, whether the howling blizzards of January beat upon the wind-dows or the patter of a chill April rain. Houses that vary in temperature with the incalculable needs of a temperamental furnace—or furnace man—make unjust demands upon the health and vigor of its occupants, increasing their susceptibility to cold and disease germs.

### How Create Humidity in 8-Room Dwelling

That the public is coming to know more about warm air heating and consequently are asking more and more questions about it is evident in the following query which appeared in a recent issue of the *Youngstown (Ohio) Telegram*:



"Business has increased steadily since we started specializing in Anaconda Copper," says Jack Curran, sheet metal contractor, Scarsdale, New York.



John P. Curran, President, Curran & Curran, Scarsdale, N. Y.

If you wish to succeed in a progressive community, you must do dependable work with durable materials. Curran & Curran have prospered because they know the service and workmanship their Scarsdale customers expect them to deliver. Here's what popular Jack Curran, President of the firm, says about the part Anaconda Copper has played in the success of their business:

"Selling the public on quality is becoming easier every day. A case in point is Anaconda Copper. People are finding out that where copper is used, rust is impossible, paint is unnecessary, and long life and economy are assured. Anaconda advertising has driven these arguments home. It pays to install it. Business has increased steadily since we started specializing in Anaconda Copper."

Anaconda Sheet Copper is manufactured with the highest metallurgical skill by the world's largest and most experienced producers of

Copper, Brass and Bronze. Its uniform quality and workability are due to the scrupulous care attending every stage of manufacture from mine to finished product.

Stocks of Rolls, Economy Strips and flat sheets of uniform gauge are maintained by leading distributors, assuring prompt deliveries to all sections of the country.



This well appointed shop does a business out of all proportion to its size. Anaconda Copper has been an important factor in the successful expansion of their business.

THE AMERICAN BRASS COMPANY  
GENERAL OFFICES: WATERBURY, CONN.  
Canadian Mill:  
ANACONDA AMERICAN BRASS LTD.  
New Toronto, Ont.

Sheet Metal Work of  
**ANACONDA COPPER**



Look for the name ANACONDA in every sheet and strip. Leading Supply Houses carry it.

Mention AMERICAN ARTISAN in your reply—Thank you!

### Humidity

Will you kindly tell me how to evaporate 30 gallons or more of water in a dwelling having eight rooms, hot air heating?

Answer—I suppose you refer to the means of maintaining fair humidity in the winter time. That requires the evaporation of from 30 to 50 gallons of water each 24 hours in the average eight-room dwelling when the household temperature is kept at 68 degrees F. Much more water must be evaporated if the temperature is allowed to go higher. Equipment may be built in or installed by the plumber to provide automatic control of water evaporation. The most satisfactory plan I know, that is not costly, is the use of humidifiers on each register or radiator. These humidifiers hold several gallons of water and evaporate it through a manifold of absorbent wicking suspended over and dipping in the water.

### SPOT NEWS

Klimpel-Person, Inc., Seattle, Wash., has been chartered with a capital of \$25,000 by Walter Klimpel and Axel Person to engage in the warm air furnace and oil burner business.

The W. S. Nott Company, 201 North Third Street, Minneapolis, Minn., has the roofing and sheet metal contract on the C. H. Will Motor Company building.

Wm. Kruckeberg, 3119 Nicollet Avenue, Minneapolis, Minn., has the roofing and sheet metal contract for school addition and library in Monticello, Minn.

The Cedar Rapids Sheet Metal Works, Cedar Rapids, Ia., has the sheet metal contract for women's dormitory at Agricultural College, Ames, Ia.

The Iowa City Sheet Metal Works, Iowa City, Ia., has the sheet metal contract for the American Legion building at that point.

The Stanford Sheet Metal Works, 815 Emerson Street, Palo Alto, Cal., has the sheet metal contract for Catholic church at Mountain View, Cal.

M. C. Henry, 2015 Chestnut Street, Oakland, Cal., has been awarded the sheet metal work on school building at Albany, Cal.

The Guilfooy Cornice Works, 208 Eighth Street, San Francisco, Cal., has the sheet metal contract for branch bank building of American Trust Company.

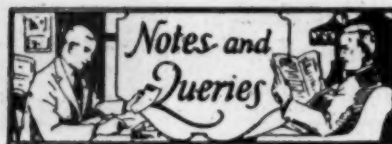
The East Bay Sheet Metal Works, 1101 Market Street, Oakland, Cal., has the sheet metal contract, at \$11,500, for business building at 20th and Broadway.

The J. Rosen Cornice Works has the hollow metal window contract, and the Utility Sheet Metal Products Company, the sheet metal contract for the Herbert M. Baruch Corporation office building and film studio in Los Angeles, Cal.

The Ace Sheet Metal Works, 4526 South Vermont Avenue, Los Angeles, Cal., has been awarded the contract for all sheet metal work on the plant of the Illinois Pacific Glass Company at that point, which will require 1,500 squares of galvanized sheets.

Schupert & Koubalka have the sheet metal contract for the warehouse building of Paul L. Hummer in Iowa City, Ia.

The Augusta Roofing and Metal Works, 529 Broad Street, Augusta, Ga., has the built-up roofing and sheet metal work contract for the Hotel Richmond at that point.



### "Little Draft Man" Regulator

From Franz & Summers, 600 North Second Street, Springfield, Ill.

Please tell us who manufactures or distributes the Little Draft Man regulator.

Ans.—The manufacture of this regulator was discontinued about five years ago.

### Red Paint

From Young Hardware Company, Bellevue, Ia.

Please tell us who manufactures high grade red paint for painting Spanish metal tile tin roofs.

Ans.—Wm. Connors Paint Man-

ufacturing Company, Troy, N. Y.; National Paint and Varnish Company, 8709 Kinsman Road, Cleveland, O.

### Metal Eyelets

From George A. Fleissner, New Ulm, Minn.

Where can I secure small eyelets for No. 9 and No. 10 wire, about ¼ inch long?

Ans.—Waterbury Button Corporation, 230 South Wells Street; Chase Brass and Copper Company, 1300 West Harrison Street, and Barrett Bindery Company, 1328 West Monroe Street, all of Chicago.

### Setter Can Covers

From Johnson Plumbing and Heating Company, Osage, Ia.

Where can I buy 8½ inch setter can covers?

Ans.—American Can Company, 104 South Michigan Avenue, Chicago; Republic Metalware Company, Buffalo, N. Y.; National Enameling and Stamping Company, Milwaukee, Wis., and J. G. Cherry Company, Cedar Rapids, Ia.

### "Round Oak" Furnace

From W. J. Kimball, Curve Street, Aiken, S. C.

Can you advise me who makes the "Round Oak" furnace?

Ans.—The Beckwith Company, Dowagiac, Mich.

### Suction Blower Systems

From Wilmer Rosel, St. Ansgar, Ia.

Please give me the names of a few manufacturers of suction blower systems for dust and leaves.

Ans.—B. F. Sturtevant Company, Hyde Park, Boston, Mass.; De Bothezat Impeller Company, 1922 Park Avenue, New York City; American Blower Company, Detroit, Mich.

### Furnace Brushes

From John G. Wright, 513 Jefferson Street, Waterloo, Ia.

I should like to know who manufactures a steel or wire furnace brush with long flexible handle and flexible bristles.

Ans.—Metal Bound Brush and Broom Company, 119 East Pearl Street, Cincinnati, O., and Mid West Brush Company, 622 Hubbard Street, Milwaukee, Wis.

*"And remember this —  
You can recommend sheet  
steel on its proven merit"*



**Y**OU'RE going out to hustle for business in our territory. You ought to be successful. There's no reason why you shouldn't—I've trained you well in the sheet metal business. You understand the customer's viewpoint. You can talk sheet metal in his language.

"This is the age of steel. What you'll sell mostly, is jobs involving Sheet Steel—roofs, drainage systems, ventilation layouts, heating plants, cornices, ceilings, wall tile, special work of all kinds. And remember this—you can recommend Sheet Steel on its proven merit. You won't have to exaggerate. You won't have to make excuses. Sheet Steel has a fine service record. In every community there are old installations

that have been in service for a generation or more. Use them as evidence. Sell quality first, last and always. Remember, heavier sheets carry heavier coatings.

"Up-and-coming shops are doing aggressive selling. They are no longer willing to stick to the bench and 'accept' orders. Neither am I. So I am starting you out to cover a territory—and sell. Go to it."

**I**N THIS day, business has to be sold. And it's comparatively easy to sell Sheet Steel jobs. The public—the dwellers right in your neighborhood or territory—knows about Sheet Steel, knows that it is the modern material for thousands of uses, knows that it means strength, beauty, safety and economy. SHEET STEEL TRADE EXTENSION COMMITTEE, TERMINAL TOWER BLDG., CLEVELAND, OHIO.

**SHEET STEEL**  
*for Strength Safety Beauty and Economy*



## Pig Iron Sales Increased; Steel Buoyant

*Sheets Advance for Last Quarter—  
Steel Production Continues High*

**P**IG iron is increasingly sympathetic to the sustained demand and firmer price tendency which have characterized finished steel recently, and for many producers the past week has been the most active selling one this year. Demand in the Middle West is of the proportions of a buying movement and many consumers, evidently believing pig iron to be a "buy" at current prices, have covered for the remainder of the year. The situation bears some of the earmarks of 1924, when the pig iron markets became active and buoyant preceding the presidential election and continued so into the following year.

### **Trend Toward Higher Steel Prices Marked**

Finished steel, meanwhile, has bridged the middle of August—normally a slack period—with an inflow of orders and a rate of production equaling the July record. The trend toward higher prices is marked. More producers are advancing heavy steel; independent sheet mills are opening fourth quarter books at \$2 to \$3 over present quotations, and strip makers may follow.

Independent sheet mills in the Mahoning valley have announced fourth quarter prices as 2.75 cents, Pittsburgh, on black, 3.50 cents on galvanized, and 2.00 cents to 2.10 cents, depending on width, on blue annealed. Auto body sheets are unchanged at 4.00 cents. A Chicago district independent is asking 2.85 cents, Western mill, for black, 3.70 cents for galvanized, and 2.10 cents for blue annealed. It may be several weeks before these levels enter the test period. Demand at Pittsburgh and Youngstown is large and diversified. At Chicago, black and galvanized grades lead.

### **Steel Corporation Up to 80 Per Cent**

With 43 out of 53 open hearths lighted, one more than last week,

independent steel production in the Mahoning valley is at its highest point this year. The Pittsburgh district is up three points this week, to 78 per cent. Bethlehem Steel Company is exceeding the 80 per cent schedule for August, while Carnegie Steel Company and Jones & Laughlin Steel Corporation are at 75 to 80 per cent. Of the 127 independent sheet mills in the Mahoning valley, 107 are operating this week, a decline of one. Chicago steel-making operations are unchanged, though slightly stronger, at 75 per cent. Steel corporation subsidiaries are at 80 per cent this week, and the entire industry at 75 per cent, up four points.

### **Pig Iron**

Vacations at Pittsburgh evidently have created a featureless period in the pig iron market. Occasional spot market sales of limited tonnages are noted. Certain merchant furnaces are firming up quotations and are naming \$16.75 and \$17, valley, for No. 2 plain. However, \$16.50 has not disappeared. No interest is noted in the market for basic, nominally \$16, valley. Bessemer is \$17 and selling in small quantities.

Chicago pig iron sales by Northern furnaces for the remainder of the year are increasing in volume, and a number of the larger users show more interest in the market.

Sales of pig iron at Birmingham are not frequent, but the probable make of the next 40 days has been covered. The price is firm at \$15.50, base, Birmingham.

### **Copper**

Brass and copper products are being produced at high rates for this season and prices are steady on the basis of 14.75 cents, Connecticut, for copper.

Stocks of refined copper in the hands of producers are the lowest in 10 years. Less than 12 days'

supply now is being carried since July shipments were record-breaking and topped production by about 4,000 tons, by which amount stocks declined.

### **Zinc**

Prime Western has remained unchanged for two weeks at 6.25 cents, East St. Louis. Buying was active at the time the prompt price took on new firmness, but in the past week or so buying has been light. It is believed much buying remains to be done for September shipment. Shipments set a new record for July, with 49,510 tons going to the domestic outlets and 3,638 tons for export. Total shipments for seven months also set a new record.

### **Tin**

Business with users was large on Thursday last week, but since then the market has been quiet. Prices went up rapidly for several days and then down again. The price movement was most pronounced in spot, where an unusually large premium developed on account of arrivals this month being a little light.

### **Lead**

Buying has been active after a few weeks of quietness. All classes of users came in for prompt and September needs. A little metal on East St. Louis was offered a shade under 6.00 cents, but was quickly taken and the market became firm.

### **Old Metals**

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$15.75 to \$16.25; old iron axles, \$24.00 to \$24.50; steel springs, \$15.50 to \$16.00; No. 1 wrought iron, \$11.00 to \$11.50; No. 1 cast, \$13.00 to \$13.50; all per net tons. Prices on non-ferrous metals are quoted as follows, per pound: Light copper, 10½ cents; zinc, 3¼ cents; cast aluminum, 11¾ cents.

# Inland <sup>Copper Alloy</sup> Steel Sheets



*U. S. Government Dirigible Hangar at Grosse Ile, near Detroit, Michigan, completely covered with Inland Copper Alloy Galvanized Sheet Steel.*

## The Verdict of the Elements

Twelve years ago, the American Society for Testing Materials, an unbiased scientific and technical organization, placed a variety of unprotected black sheets in racks at Pittsburgh, Pa., Fort Sheridan, Ill., and Annapolis, Md., to determine which of the various materials exposed, best withstood rust and corrosion.

The verdict was *Copper Alloy Steel Sheets*. They far outlasted all other steel and iron sheets in resisting the onslaught of the elements. No other grade was comparable.

This is why we so strongly recommend INLAND COPPER ALLOY STEEL for all exposed uses. It can be furnished in Blue Annealed, Box Annealed and Galvanized Sheets.

## INLAND STEEL COMPANY

38 South Dearborn Street  
CHICAGO

Branch Offices: ST. LOUIS    MILWAUKEE    ST. PAUL    KANSAS CITY

Contributing Member: SHEET STEEL TRADE EXTENSION COMMITTEE

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**THE EIERMANN**  
Patented  
**ROOFERS TOOLS**  
INTERCHANGEABLE BLADES

A New Blade. A New Tool Every Time, that's what counts, and the weight does the trick. You can do more work with less effort with this tool than any other tool on the market. Built of metal throughout.

3 1/2" \$4.25  
7" \$4.50  
14" \$5.00

Extra Blades  
3 1/2" 40c, 7" 70c,  
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**A Revolution In Gutter Hanging**

Made of galvanized iron or copper. To use this hanger cut no stays, use no solder, thumbolts or rivets. Its hinge movement enables adjustment at shop. Nothing to do at building but drive nail. Make joints in the bead of gutter with hanger adjusted without catching under the eaves. Stay wire being adjustable, it will hang any kind of hanging eave trough, OG or Box Gutter. Made in sizes 3, 3 1/2, 4, 4 1/2, 5, 6, 7, 8 and 10 inches. Packed 1 gross in a package.

**THE HORAN STAY HANGER CO., Louisville, Ky.**



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**SHEET METAL ORNAMENTS**  
AND STATUARY  
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STANDARD OF THE WORLD



**THE BEST BRAKE FOR ALL PURPOSES:** Most Durable, Easiest Operated, Low in Price. Made in All Lengths and to Bend All Gauges of Metal. Over 25,000 in use.

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**Plain Round**

NEVER MADE WITHOUT THIS

TRADE **F. Dieckmann** MARK

**Quality and Service Made 'em Famous**

Made of one piece of heavy gauge material, in all styles and angles from 10 to 90 degrees, of 24, 26, 28 ga. ternes, then galvanized after formation.

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**Elbows and Shoes**  
are the standard of the market and always give satisfaction

Send for new catalogue 26 showing complete line

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P. O. Station B, Cincinnati, O.

**Square Corrugated Style A**

**Square Corrugated Style B**

Not made lighter than 28 ga. or 16 oz. copper

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PASTE		RIDGE ROLL	
Asbestos Dry Paste:		Galv., Plain Ridge Roll, V'did	75-10-4%
200-lb. Barrel	\$16 80	Galv., Plain Ridge Roll crated	75-10%
100-lb. barrel	8 75	Globe Finials for Ridge Roll	50%
25-lb. pall	3 50		
10-lb. bag	1 10	SCREWS	
5-lb. bag	35	Sheet Metal	
2 1/2-lb. cartons	35	7, 1/2 x 1/4, per gross	\$9 53
POKERS, FURNACE		No. 10, 1/2 x 3/16, per gross	83
Each	\$0 75	No. 14, 1/2 x 1/4, per gross	83
POKERS, STOVE		SHEARS, TINNERS' & MACHINISTS'	
Nickel Plated, coil handles, per doz.	1 10	Viking	\$21 00
Wrt Steel, str't or bent, per doz.	\$0 75	Lennox Throatless	
PIPE		No. 18	35%
Conductor		Shear blades	10%
Cor. Rd., Plain Rd., or Sq.		(f. o. b. Marshalltown, Iowa)	
Galvanized		SHIELDS, ADJUSTABLE RADIATOR	
Crated and nested (all gauges)	75-2 1/4%	No. 1 "Gem" 11" to 17"	30%
Crated and not nested (all gauges)	70-15%	No. 2 "Gem" 14" to 24"	30%
Furnace Pipe		No. 3 "Gem" 35" to 65"	30%
Double Wall Pipe and Fittings	50%	SHOES	
Single Wall Pipe, Round		Galv. 28 Gauge, Plain or corrugated round flat crimp	60%
Galvanized Pipe	50%	26 gauge round flat crimp	45%
Galvanized and Tin Fittings	50%	24 gauge round flat crimp	15%
Lead		SNIPS, TINNERS	
Per 100 lbs.	\$12 50	Clover Leaf	40 & 10%
Stove Pipe		National	40 & 10%
"Milcor" "Titelock" Uniform Blue		Star	50%
28 gauge, 5 inch U. C.	10 50	Milcor	Net
28 gauge, 6 inch U. C.	11 00	SQUARES	
28 gauge, 7 inch U. C.	13 00	Steel and Iron	Net
30 gauge, 5 inch U. C.	9 00	(Add for bluing \$3 per doz. net)	
30 gauge, 6 inch U. C.	10 00	Mitre	Net
30 gauge, 7 inch U. C.	12 00	Try	Net
T-Joint Made up		Try and Bevel	Net
6-inch, 28 ga.	per doz \$ 4 00	Try and Mitre	Net
All Zinc		Fur's	per doz \$6 00
No. 11, all styles	60%	Winterbottom's	10%
PULLEYS		STOPPERS, FLUX	
Furnace Tackle	per doz \$9 53	Common	per doz \$1 10
Furnace Screw (enameled)	per doz \$ 50	Gem, No. 1	per doz 1 10
Furnace Screw (enameled)	per doz 75	Gem, flat, No. 3	per doz 1 00
PUTTY		VENTILATORS	
Commercial Putty, 100-lb. Kils	\$3 50	Standard	30 to 40%
QUADRANTS		WIRE	
Malleable Iron Damper	10%	Plain annealed wire, No. 8 per 100 lbs.	\$3 00
REDUCERS—Oval Stove Pipe		Galvanized barb wire, per 100 lbs.	\$ 80
1-4, 28-gauge, 1 doz. in carton	\$2 00	Wire Cloth—black painted, 12-mesh, per 100 sq. ft.	1 25
REGISTERS AND BORDERS		Cattle Wire—galvanized catch weight spool, per 100 lbs.	\$ 80
Baseboard, Floor and Wall.		Galvanized Hog Wire, 80 red spool, per spool	\$ 15
Cast Iron	20%	Galvanized Plain Wire, No. 8, per 100 lbs.	\$ 25
Steel and Semi-Steel	40%	Stove Pipe, per stone	1 10
Baseboard, 1 piece	40-20%		
Baseboard, 2 piece	40%		
Wall	40%		
Adjustable Ceiling Ventilators	40%		
Register Faces—Cast and Steel			
Japanned, Bronzed and Plated, 4x6 to 14x14	40%		
Large Register Faces—Cast, 14x14 to 35x42	50%		
Large Register Faces—Steel, 14x14 to 35x42	55%		
Ventilating Register			
Per gross	\$ 00		
Small, per pair	25		
Large, per pair	50		





The 12-Cylinder Ventilator  
Used in Every State  
in the Union.

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VENTILATORS**

## ÆOLUS FOR HOMES

The home should be properly ventilated—few of them are. Here is a sales opportunity often overlooked by the average Sheet Metal Worker, but one which offers a lucrative business to those who take advantage of it.

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Better Balance

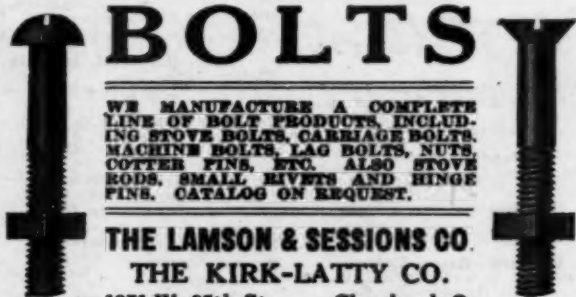
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Write for special circular and prices today

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Ryerson & Son, Inc., Jos. T.,  
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Ryerson & Son, Inc., Jos. T.,  
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Copper & Brass Research As-  
sociation, New York

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Wonder-Worker Gas Appliance  
Co., Cincinnati, Ohio

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Cleveland, Ohio

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Berger Co., L. D.,  
Philadelphia, Pa.  
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Detroit, Mich.  
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Duluth, Minn.  
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Independent Reg. Co.,  
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Tuttle & Bailey Mfg. Co.,  
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Waterman-Waterbury Co.,  
Minneapolis, Minn.

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Whitney Mfg. Co., W. A.,  
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Mil., Ch'go, La Crosse, Kan. City

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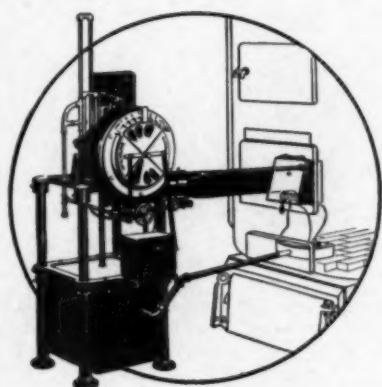
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**ST. LOUIS TECHNICAL INSTITUTE** O. W. Kothe, Prin. 4543 Clayton Ave., ST. LOUIS, MO.



# 2 Reasons why Warm Air Furnace Dealers are Making Big Money with the McIlvaine Oil Burner for Warm Air Furnace Installation



## Continuous Flame

The McIlvaine system of continuous operation gives the furnace a chance to absorb the heat of the fuel. It does not alternately force this heat up the chimney and then allow cold air to rush through and cool the furnace off again. The flame is automatically increased or decreased and burns at a rate just sufficient to balance the heat loss of the building. Thus a continuous and efficient circulation of warm air is maintained throughout the system, insuring an even temperature in every room.

## Mechanical Draft

The McIlvaine Air Shutter automatically proportions the air and oil so that the flame always burns clean. The motor-driven fan eliminates the effect of changing draft conditions so objectionable with the so-called "gravity" type of burner. The McIlvaine is exceptionally quiet and smooth in operation. It does not disturb you by jumping from a flicker to a roaring blaze every time the temperature in the house drops a few degrees.



Write today for complete information about the valuable  
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**McILVAINE BURNER CORPORATION**

749 Custer Ave.

Dept. A

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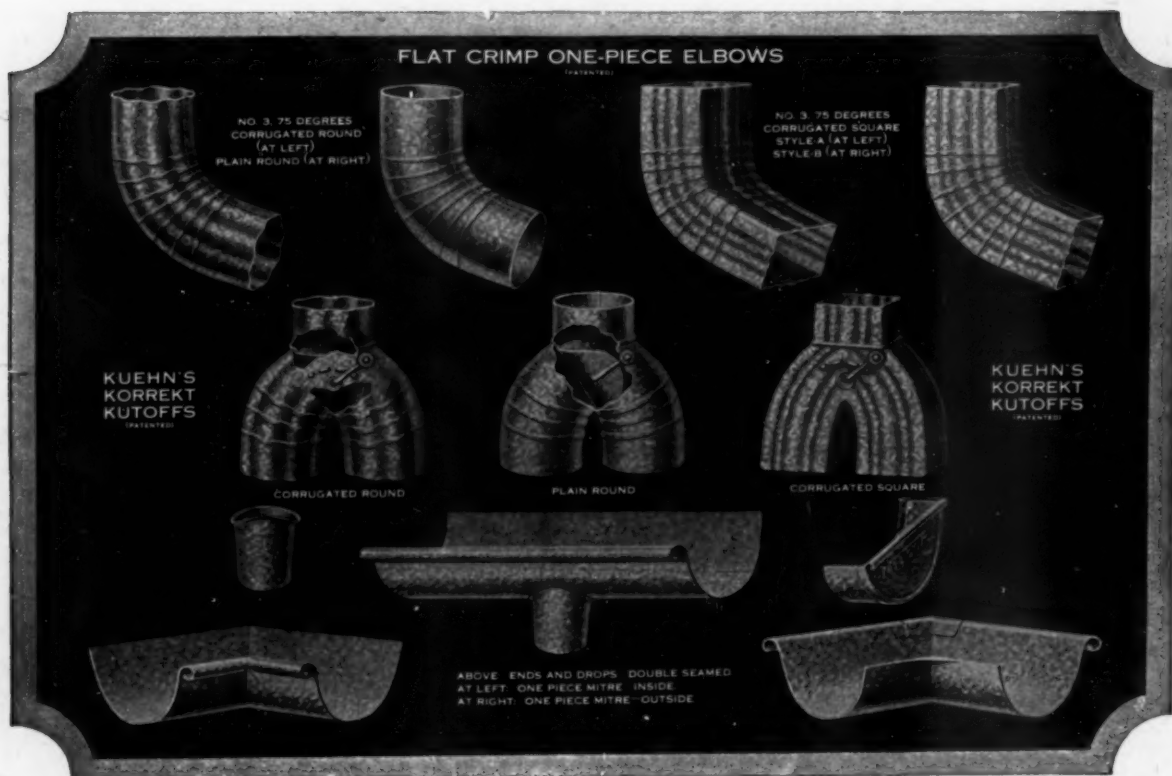


# McILVAINE

## OIL BURNER

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**Y**OU can't build business on hot air. Business needs the firm foundation of unquestioned quality, quality that has been proven time and again, under many different conditions.

When you tell a contractor or a builder that you will use Milcor products on a job, he knows what you are talking about. You don't have to explain to any builder or architect that Milcor Eaves Trough or Gutters or Rain Carrying Equipment of any sort is high grade. They know. And they will be mighty glad to know that you use Milcor products. They want them.

Milcor advertising appears in the leading contractors, builders and architectural papers. That advertising has

made it easy for you to sell Milcor Sheet Metal Products. But it has also placed us under a heavy obligation to deliver the quality of workmanship and metals that we claim for Milcor products.

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The Milcor line of Eaves Trough, Conductor Pipe and Trimmings, Roofing, etc., is not only complete. It is carefully made and so guaranteed. - It meets architects' requirements. But most of all it satisfies you, because you KNOW what sheet metal work should be.

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